State of Michigan
Department of Technology, Management and Budget

Information, Communications and Technology (ICT) Strategy Technical Advisory Services

Prepared for

Deliverable A — Current State Assessment and Maturity Analysis

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Gartner

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Background and Overview

- For the State of Michigan (SOM), Information, Communications and Technology (ICT) is a pivotal area in the transformation of State operations, as well as for the State itself. As such, the State seeks to ensure alignment of its ICT assets, business model, operations and strategy with current and future needs. To this end, the State engaged Gartner to review, assess, evaluate and make recommendations for improvement. This engagement is in light of the anticipated opportunities and needs of Michigan's citizens and businesses, the corresponding Executive Office goals, and relevant actions planned across agencies and programs statewide.
- Michigan, along with other states, is faced with new challenges and opportunities that call for revisiting the expectations about government goals, policies, strategies, operations and performance, and the role that ICT plays in enabling and driving government functions and services. State organizations and jurisdictions have found that they cannot avoid sometimes radical change and innovation. They cannot avoid risk by standing still or doing nothing, as inaction entails as much or more risk than action.

Executive Summary

Background and Overview (continued)

- The State seeks to maximize its assets, enhance shared services and cross-boundary partnerships, reduce the cost of operations, and improve customer service over the short and long run. Specifically, the intended outcomes of this initiative are to:
  1. Improve customer service;
  2. Implement a successful, sustainable and innovative governance model;
  3. Reduce Michigan's cost of procuring, implementing, operating, upgrading and replacing ICT infrastructure products, applications and services;
  4. Increase attraction, retention and development of the SOM ICT workforce;
  5. Enable cost savings and better government through shared solutions and cross-boundary partnerships; and
  6. Implement best-practice ICT solutions and technologies.

Executive Summary

Background and Overview (continued)

- The State of Michigan partnered with Gartner to ensure alignment of its ICT assets, business model, operations and strategy with current and future needs.
- In order to expeditiously gather information on the current state, Gartner executed six major threads of activity to obtain data about the current environment:
  - Series of interviews with each State of Michigan agency, representative counties, the DTMB liaisons who interact with customers (i.e., IOs, CSDs) and the various DTMB teams that provide services to those customers.
  - Series of interviews with DTMB leadership executives and a review of DTMB's strategic plan and statewide goals.
  - Infrastructure Benchmark to determine cost levels and personnel productivity of providing infrastructure services in comparison to peer organizations.
  - Applications Benchmark to understand cost levels and personnel productivity of supporting existing end-user applications in comparison to peer organizations.
  - Skills Assessment to determine the skills and competencies that DTMB personnel currently possess vis-à-vis the expected level of qualifications relative to their role and seniority within the DTMB organization.
  - IT Business Effectiveness Survey to understand customer satisfaction with the services DTMB currently provides, as well as DTMB alignment with its customers' priorities and strategic objectives.

Executive Summary

Background and Overview (continued)

- Gartner assimilated the information gathered to render a maturity level for each of the nine role perspectives (e.g., CIO: Business Alignment and Effectiveness, Applications, etc.) across each dimension of the TOPSS model: technology, organization, process, strategy and service level exhibited in the graphic below.
  - The maturity scale is developed on an idealized basis, meaning that a Level 5 is the absolute best practice in the industry for that activity. Relatively few organizations make the investment to become Level 5 in all the areas, because it would be prohibitively expensive to do so without a commensurate return on investment.
  - Target states were determined using a combination of feedback from DTMB customers' stated needs, and DTMB leadership's stated goal of becoming a best-in-class service provider. If achieved, the target states chosen will very highly likely exceed the performance of the vast majority of (if not all) public sector organizations.

Executive Summary

Primary Themes

The Current State Assessment revealed a number of primary themes that span the nine IT roles. The themes are listed below and are substantiated and described in greater detail in the subsequent pages:

- **Customer Alignment and Relationship Management is Challenged** — The introduction of the Information Officer (IO) model to provide dedicated liaisons to agencies is a positive development, but DTMB must significantly improve customer alignment and relationship management to address customer dissatisfaction.
- **Unclear Business Value of DTMB Services** — Agencies understand the technical importance of DTMB support, but DTMB does not clearly communicate the business value of it services to customers.
- **Cost Control and Efficiency Opportunities Exist** — Although DTMB is established as a cost-recovery organization and has standardized budgeting and financial processes in place, DTMB needs to move to a portfolio management approach for DTMB assets to more effectively manage costs. DTMB exhibits characteristics that indicate opportunities for additional operational efficiencies.
- **Innovation Successes Lay Foundation for Future Improvements** — DTMB has been nationally recognized for several past innovations, but it must enhance its understanding of customer business needs and apply that understanding to future innovative efforts in a consistent, formalized manner.
- **Skilled, But Sub Optimally Utilized Workforce** — DTMB must address skills gaps in specific categories, misaligned titles and duties, and create formal accountability within DTMB.

Executive Summary

Primary Themes (continued)

- **Procurement and Vendor Management Issues Impact Efficiency** — Many baseline procurement organizational/functional units are not established, leading to inefficiencies and delays; vendor management is not currently practiced by DTMB.
- **continued Improvement of Strong Management and Protection of DTMB Assets** — DTMB is nationally-renowned for cybersecurity and data protection and touts effective operational capabilities, but can strive to keep improving. For example, DTMB can increase focus on privacy management and data security management to more effectively articulate rules and regulations that govern data sharing across state and federal agencies.

Executive Summary

Key Findings By Theme

Customer Alignment and Relationship Management is Challenged

- DTMB is not viewed by many of its customer agencies as a customer-service-oriented organization and may be failing to incorporate business needs into the IT strategy.
  - Bottom Line: Only 16% of agencies that participated in the ITBE survey reported that they viewed DTMB as a strategic partner that is fully aligned with their agency strategy and an integral part of their business.
- Partnership opportunities with local government agencies could be greatly improved.
  - Bottom Line: Local governments are finding DTMB services prohibitively expensive (e.g., 800 MHz dispatch system) as a result of offerings not meeting their business needs, and express that DTMB does not effectively partner with them to understand customer requirements.

Unclear Business Value of DTMB Services

- Metrics and Service Level Agreements (SLAs) provided to DTMB customers are not descriptive and do not meet customer needs; many customers are unaware of SLAs.
  - Bottom Line: DTMB needs to improve SLAs to demonstrate value and meet customer needs. Furthermore, DTMB needs to provide consistent metrics on SLA performance and communicate those with customers.
- Overall, Infrastructure and Operations (I&O) maturity is high, but is hampered by technology taking precedence over business alignment. Each technology platform has a unique service catalog.
  - Bottom Line: Strong technology alignment and multiple service catalogs make it more difficult to work collaboratively across Infrastructure Services in a coordinated and organized manner.

Executive Summary

Key Findings By Theme (continued)

Cost Control and Efficiency Opportunities Exist

- The DTMB annual budget is not composed of specific initiatives and projects.
  - Bottom Line: This prevents DTMB from achieving the granularity it needs for scheduling, resource allocation, and prioritization of activities. Without this information, DTMB cannot work with the agencies to prioritize resources or manage expectations, which results in customer frustration.
- DTMB has limited enterprise insight into demand/resource management and benefits realization.
  - Bottom Line: DTMB is unable to effectively perform portfolio and investment management and maximize enterprise value.
- Infrastructure Services is a consolidated and centralized IT infrastructure organization that is working on adopting and implementing industry-leading trends.
  - Bottom Line: Consolidation and centralization lead to optimization and standardization. Efficiencies from consolidation places the State of Michigan better than the peer average for I&O costs.
- There are numerous programming languages and development tools in place that are not standardized across development teams.
  - Bottom Line: Platform complexity is driving higher costs and the need for more programmers.
- Application Portfolio Management (APM) is still in its infancy, which limits the ability to proactively retire older technology platforms.
  - Bottom Line: The lack of APM results in reactive, tactical decisions for applications on older platforms that cannot be modified in order to avoid very difficult-to-resolve outages.

Executive Summary

Key Findings By Theme (continued)

Innovation Successes Lay Foundation for Future Improvements

- Enterprise Architecture (EA) is viewed as a burdensome process focused on technical compliance. Key EA domains of Business Architecture, Information/Data Architecture, Integration Architecture and Solution Architecture are not managed at this time.
  - Bottom Line: Not managing key EA functions is an area of high risk, especially considering the federated nature of the Agencies. It is also an area of discontent for customers, who desire more solution design earlier in the requirements definition process.
- No centralized Business Intelligence (BI) center of excellence (COE) exists to coordinate BI and corporate performance management (CPM) activities across DTMB.
  - Bottom Line: Performance Management is not connected to BI, which is not connected to Enterprise Information Management and Master Data Management, rendering citizen-centric government very difficult.

Skilled, But Sub Optimally Organized and Utilized Workforce

- Varying degrees of project management skill exist within various IO units.
  - Bottom Line: Varying skill levels of project managers result in wide gaps in customer satisfaction. Additionally, agency customers often view DTMB as unable to deliver large or innovative projects on-time and on-budget.
- The organizational structure of DTMB limits the authority, oversight and executive reporting responsibility of the ePMO.
  - Bottom Line: The ePMO is severely limited in its ability to effectively perform enterprise program and portfolio management because it reports to a single IO in Agency Services. For example, although DTMB has standardized on the SUITE methodology for project management, it has been inconsistently adopted.

Executive Summary

Key Findings By Theme (continued)

Procurement and Vendor Management Issues Impact Efficiency

- Many baseline procurement organizational functions found in peers are missing — the procurement organizational structure seems unique to Michigan.
  - Bottom Line: The dispersion of procurement functions across organizational components adds complexity, which results in bottlenecks that lengthen the procurement process.
- The sourcing strategy is not integrated with the strategic technology planning, which results in delays and divergent priorities on what to bid and when.
  - Bottom Line: Lack of integration with strategic planning results in procurement being viewed as an inhibitor, and diminishes the DTMB's ability to enable strategic sourcing.

Continued Improvement of Strong Management and Protection of DTMB Assets

- DTMB is using the right tools, supports a mature architecture, and is involved in all the traditional security processes.
  - Bottom Line: This is a good foundation to improve security management processes.
- DTMB lacks a strong focus on privacy management and data security management.
  - Bottom Line: Privacy management is an increasingly important area in the industry. Lack of privacy management increases overall risk to the State.
- DTMB is not leveraging all capabilities of tools, or protecting the entire infrastructure consistently.
  - Bottom Line: Advanced threats through desktop applications can cause security breaches.

Executive Summary

Infrastructure Benchmark Key Takeaways

- DTMB Infrastructure Services generally performs at approximately the average vs. peers in terms of cost efficiency and staff productivity, which is considered good, since DTMB has not performed this kind of benchmark in the past. Gartner would generally expect a new benchmarking client to perform somewhere near the 75th percentile. A 75th percentile ranking is paramount to a spending cost in the top 25% of comparable peers).
- The State of Michigan spends $15M less than the peer group for infrastructure. Spending is lower than the peer group in all functional areas. Drivers of the variance include lower spending in hardware, personnel, transmission and occupancy.
- Michigan spends more than the peer group in the software category for Help Desk, Unix, Internet and Storage. Wintel server software is lower than the peer group.
- Total staffing is lower than the peer group, with Michigan at 616 and the peer group at 626.
  - Michigan utilizes fewer FTEs in some areas, such as Client and Peripheral, Unix and Data Networking, but more FTEs than the peer group in Wintel and Voice.
  - The cost per FTE is lower at Michigan compared to the peer group.
  - Michigan and the peer group utilize a similar number of external staff resources. Michigan utilizes more contractors than the peer group, at 40 vs. 26.4, but the peer group uses more outsourcing, with 28 FTEs.
  - Per-capita spending on contractors is generally higher at Michigan, with the exception of the Help Desk and Storage.

Bottom Line: Overall DTMB spending on infrastructure is slightly lower than average ($15M) in comparison to peers, and overall cost efficiency and staff productivity is in line with peers, despite slightly lower staffing. However, DTMB spends more on certain software categories (Help Desk, Unix, Internet Storage) than peers.

Executive Summary

Applications Benchmark Key Takeaways

- State of Michigan IT spends $143.4M to sustain its 1700+ applications; a figure that closely aligns with peers in the 75th percentile (high cost).
  - State of Michigan indicates a high technical complexity which supports 14 DBMSs, 15 operating systems, 55 computer languages and 150+ support tools. While there are plans to sunset/retire and modernize a number of applications, continued support adds substantial cost to Michigan.
  - Lawson HRMN (medium customization) was the only ERP which indicated low cost compared with peers. Heavy customization, integration to packages and defect repair will often account for higher costs. Consequently, ORACLE e-Business, SIEBEL CRM and SAP PSCD (MIITAS) are highly customized packages, which leads to higher costs to support.
  - Software COTS/ERPs Package costs are high for a number of applications.
- State of Michigan cost efficiency for applications at $85 per Function Point is similar to the peer 75th percentile at $86 per FP. The Gartner Database Average is $56 per FP and the Public-Sector Peer average is $74 per FP, which is often attributed to regulatory support.
- Total Spend for personnel is less than the Peer Average, primarily driven by fewer Business Analysts.
  - State of Michigan total staffing at 787.1 FTEs is 17% less than the peer average of 950.1 FTEs.
  - State of Michigan supplemental workforce represents 41%, compared with the peer at 26% (319.1FTEs compared with 248.3 FTEs for the peer).
  - Cost per FTE is higher at $132K vs.$109K for the peer, and is driven by heavy use of high-priced contractor staff.

Bottom Line: Application support costs are high compared to peers but efficiency is in line with public sector organizations. However, total spend on personnel is less than peers, primarily due to few business analysts, despite heavy use of high-priced contractor staff.

Executive Summary

Skills Assessment Key Takeaways

- With 38% of critical skills at ‘Advanced’ or ‘Master’ levels, DTMB indicates an above average overall skill maturity level. As a rule of thumb an IT organization should have 30% of critical skills at these levels.
- IT staff is stronger in competencies associated with performing IT work and weaker in competencies associated with business alignment and customer interaction.
- Current DTMB titles are not meaningful and job titles do not describe what people do.
- DTMB has lower staffing levels in Client and Peripheral Support, Voice Network, and Data Network as compared to Gartner’s IT Key Metrics Data for State and Local Governments.
- There is no clear explanation of why Desktop Support numbers are lower in DTMB survey. People may have misclassified themselves or the people who did not take survey tended to be desktop support personnel.
- DTMB shows the highest level of capabilities in Desktop Support and most infrastructure job families. Individuals in Relationship Management and Project Management show lowest capability relative to other job families.
- There exists significant “bench strength” across DTMB. Individuals in different job families have many skills needed to perform other roles. DTMB should identify these individuals as part of their sourcing strategy and succession planning.

Bottom Line: In aggregate, DTMB exhibits high skill levels but is lacking in some key areas such as relationship management, and job titles do not align with actual duties. In addition, there is significant “bench strength” within DTMB that can be tapped to fill key roles.

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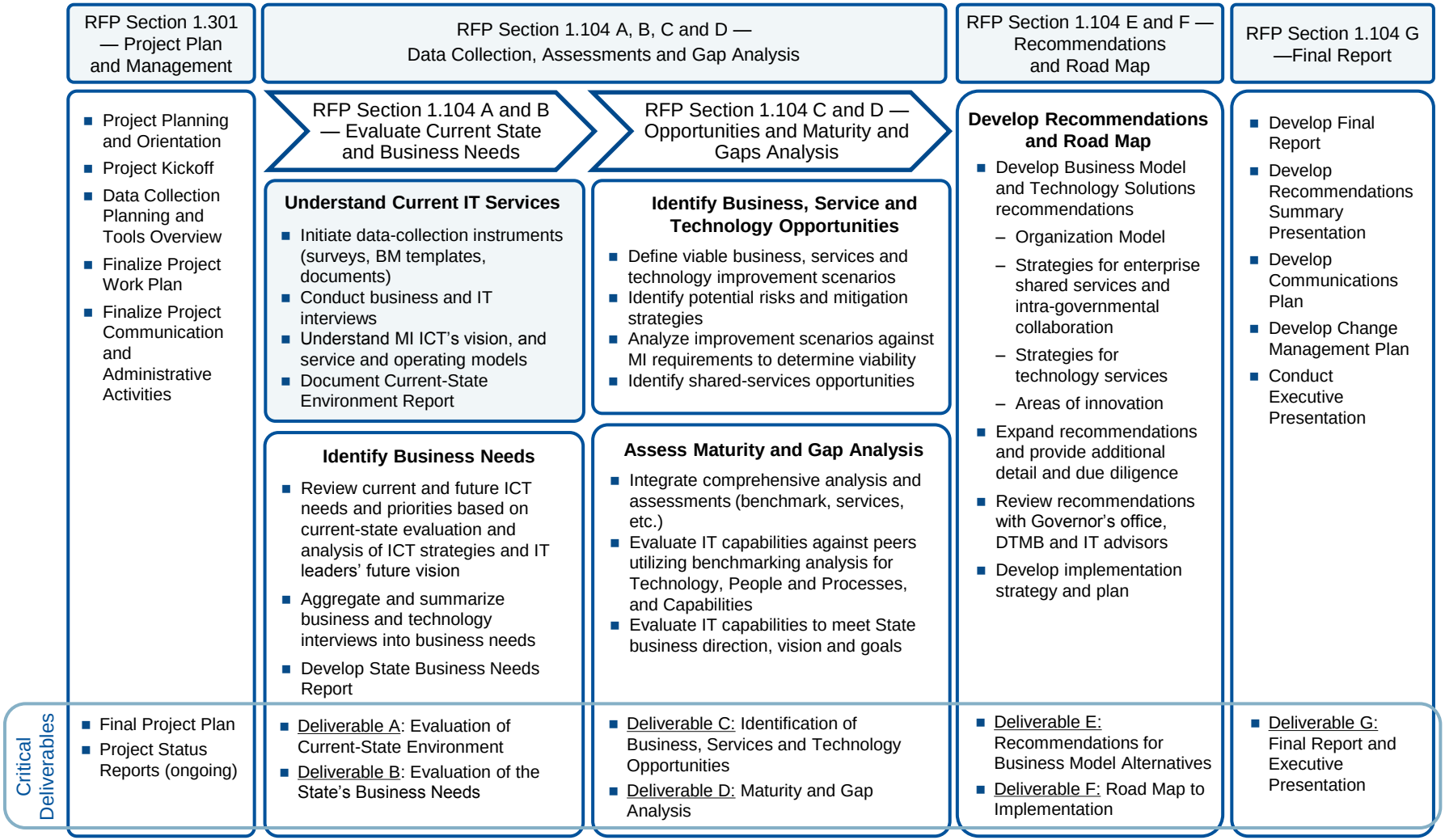
IT Business Effectiveness Survey Key Takeaways

- There are several criteria of high importance to customers that, if addressed, could provide significantly increased alignment and effectiveness.
  - Bottom Line: Cost, Service Quality, System Integration are primary targets for improvement.
- Key areas such as Project Management, Contract Management and Leadership/Innovation were rated as lowest importance by customers.
  - Bottom Line: Some core DTMB functions are not viewed as valuable by customers, but are critical to delivering high-quality, cost-effective services to customers.
- While only 16% of customers viewed the IT relationship as a partnership, and more than 2/3 are not aware of IT's goals and strategies, customers feel their dependence on IT will increase in future.
  - Bottom Line: DTMB's strategic goals are either misaligned to or misunderstood by customer agencies, resulting in a large opportunity for DTMB to improve strategic alignment.
- Approximately 71% of customers said they have SLAs, but only 66% of that group know what they are, and only 10% say they meet needs.
  - Bottom Line: Roughly 7% of DTMB customers believe that current SLAs meet their needs.

> *Customer Quote:* "A lot of SLA performance reports will have N/A in place of an actual metrics report. That is unacceptable."

Current State Assessment and Maturity Analysis Approach

Current State Assessment and Maturity Analysis Approach



Current State Assessment and Maturity Analysis Approach

Gartner's Integrated IT Assessment Framework

- Each of the nine horizontal roles was reviewed across Technology, Organization, Process Strategy and Service Levels from a current- and target-state maturity perspective, highlighting key State of Michigan details, industry trends and best practices.
- The maturity scales used for these assessments use standard criteria that incorporate best practices. These maturity scales are industry-agnostic and place no value judgement on the IT services being delivered.

Current State Assessment and Maturity Analysis Approach

Gartner's Integrated IT Assessment Approach

- Gartner applied a number of proven qualitative and quantitative tools and approaches to ensure a thorough analysis of ICT that analyzes the State of Michigan from a qualitative and quantitative perspective, where appropriate.
  - Qualitative Aspects: Process maturity, customer perceptions, alignment with best practices, etc.
  - Quantitative Aspects: Staffing, rates, spending, etc.
- Using these tools and techniques, Gartner rendered a rating for each TOPSS element within each IT role for the current state and the target state. Collectively, an overall score was assessed.
  - For instance, if Enterprise Architecture received a 2 for Technology, 3 for Organization, 2 for Process, 2 for Strategy and 2 for Service Level, the overall maturity rating for Enterprise Architecture would be 2.
- The maturity scale is developed on an idealized basis, meaning that a Level 5 is the absolute best practice in the industry for that activity. Relatively few organizations make the investment to become Level 5 in all the areas, because it would be prohibitively expensive to do so without a commensurate payback.
- Target states will be determined using a combination of feedback from DTMB customers' stated needs, and DTMB leadership's stated goal of becoming a global, best-in-class service provider. If achieved, the target states chosen will very likely exceed the performance of the vast majority of (if not all) public-sector organizations.
- The subsequent slides illustrate the individual maturity models for Technology, Organization, Process, Strategy and Service Level.

Gartner TOPSS Maturity Model

Technology

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited IT systems or tools in place to support the role. Common attributes, where applicable to the IT role, include: ■ Ineffective to no standards; ■ Siloed IT domains; ■ No consolidation; ■ Ad hoc services; ■ Limited to no metrics; ■ Limited tool deployment and usage.	**IT systems and tools are present to support the role; however, there is no coordination or standardization across the enterprise. Common attributes, where applicable to the IT role, include:** ■ Ineffective systems and moderate-to-complex workarounds exist; ■ Key standards exist and are enforced; ■ Project/Program-specific tools; ■ Duplicative tools; ■ Some technical metrics in place; ■ Reactive monitoring.	**IT systems and tools are in place to support the role, but have been procured without suitable alignment to user and operational requirements. Common attributes, where applicable to the IT role, include:** ■ Ineffective systems and moderate workarounds exist; ■ System have been significantly customized to meet end-user needs; ■ Policy-driven standards; ■ Domain-centric management tools; ■ Pre-emptive management of critical components; ■ Operational management toolset; ■ Differentiated service-based technology; ■ Standardized refresh of IT components.	**IT support systems are in place to support the IT role across the enterprise and are consistently used. Common attributes, where applicable to the IT role, include:** ■ System procurement and design incorporated end-user and enterprise needs; ■ Systems have been implemented with a minimal amount of customization; ■ Systems integrated into enterprise architecture; ■ Heavy virtualization; ■ Metrics-driven performance; ■ Service- and performance-aligned architecture; ■ Operations automation; ■ Consolidated environment (domain-level consolidation).	**IT support systems are in place and support the enterprise's ability to improve and optimize operational performance. Common attributes, where applicable to the IT role, include:** ■ System flexibility to adapt to changing business and operational needs without requiring large levels of customization; ■ Highly scalable and elastic architecture; ■ Practices innovation and deploying new technology; ■ Dynamic resource allocation; ■ Business service tools; ■ Real-time enterprise; ■ Technology Research and Development.

Gartner TOPSS Maturity Model

Organization

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of responsibilities for the IT role across the enterprise. Common attributes, where applicable to the IT role, include: ■ "Hero-oriented" culture and reliance on individuals; ■ Low staffing levels; ■ Low skill sets; ■ Undefined roles and responsibilities; ■ Low customer confidence in IT; ■ Absence of, or Informal performance reviews; ■ Limited to no metrics to manage.	**Ownership of IT support responsibilities within the enterprise exists, but the organization is immature and some of the appropriate skill sets are not present. Common attributes, where applicable to the IT role, include:** ■ Organizational structure is defined but it is not aligned for effective service delivery; ■ Technology-centric organization with tiered support; ■ Missing key organization functions/roles; ■ Inconsistently defined roles and responsibilities; ■ Limited staff development and training budgets; ■ Duplicative roles; ■ No succession planning; ■ Ad hoc governance; ■ Weak budget-level IT finance.	**Organization fairly mature and exhibits some best practices. Skill sets largely align with IT support needs. Common attributes, where applicable to the IT role, include:** ■ Organizational structure is defined and aligned for effective service delivery; ■ Process-driven organization; ■ Consolidated organization with matrix management; ■ Alignment of resources by roles and skills; ■ Optimized or near-optimized staffing levels; ■ Working to adopt best practices; ■ Some competency centers established; ■ Comprehensive staff development programs; ■ Strong IT finance roles.	**Organizational structure is defined and aligned for effective service delivery with appropriately resourced and skilled staff. Common attributes, where applicable to the IT role, include:** ■ Organizational structure is defined and aligned for effective service delivery with appropriately resourced and skilled staff; ■ Established program for ongoing training of resources; ■ Service-centric organization; ■ Service delivery-focused organization with strong relationship managers; ■ Trusted service provider to business; ■ Skills portfolio management; ■ Metrics-driven performance management; ■ Detailed role definition.	**Organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes, where applicable to the IT role, include:** ■ Customer- and business-focused organization; ■ Virtual teaming; ■ Business/IT Staff rotation; ■ Developing best practices; ■ Focused staff development and training competency centers; ■ Business-driven metrics and resourcing.

Gartner TOPSS Maturity Model

Process

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Processes to support the IT role are non-existent, or ad hoc. Common attributes, where applicable to the IT role, include: ■ Completely ad hoc processes that are not documented, standardized, measured or continuously improved; ■ "Reinvention of the wheel," duplicative efforts.	**Processes to support the IT role are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes, where applicable to the IT role, include:** ■ Processes are neither well defined nor repeatable; ■ Some or most processes documented; ■ Processes are not standardized or measured, and there is no method for improvement.	**Processes to support the IT role are standardized and are consistently applied to the organization. Common attributes include:** ■ Some processes and procedures may be manual or inefficient, and workarounds are present; ■ No measurement or means of improving those processes.	**Processes to support the IT role are well defined and managed consistently across the enterprise. Common attributes, where applicable to the IT role, include:** ■ Systems, methods and practices are followed with appropriate control and governance; ■ Mechanisms are in place across the enterprise to ensure compliance.	**Processes to support the IT role are mature and efficient. Common attributes, where applicable to the IT role, include:** ■ Processes, methods and supporting systems are integrated; ■ Control/governance mechanisms are in place to feed a cycle of continual enhancement and evolution across the enterprise.

Gartner TOPSS Maturity Model

Strategy

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined strategy or strategic planning function. Common attributes, where applicable to the IT role, include: ■ Operational process and/or technology investment decisions are made locally and independently as funding is made available; ■ The IT role does not have its own goals and objectives, and simply reacts to most-vocal or influential customers (either internal or external); ■ The IT role has no means of understanding whether or not it is aligned with DTMB's overall strategy.	**Strategic planning occurs, but it is not coordinated, not clearly defined and does not have measurable objectives. Common attributes, where applicable to the IT role, include:** ■ Strategy does not fully integrate with the wider organization, nor is it communicated enterprise-wide. ■ The IT role has its own goals and objectives, but there is no real consideration for aligning it with the overall DTMB strategy, ■ Some means of understanding whether or not it is optimizing to its own desired goals, but cannot determine if it is really working toward DTMB's overall strategy.	**The strategy is defined and communicated; however, it is not effectively translated into action. Common attributes, where applicable to the IT role, include:** ■ Governance is inadequately established, allowing for the implementation of the strategy to become fragmented and confused across the enterprise; ■ The IT role has its own goals and objectives that partially align with DTMB's overall strategy; ■ Reactively determines how well they are aligned to DTMB's overall IT Strategy; ■ Ineffective or nascent process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy, or ability to take corrective action when it is getting out of alignment.	**The strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes, where applicable to the IT role, include:** ■ An appropriate governance structure is in place to oversee and ensure the execution of the strategy; ■ The IT role has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Adequate process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy, or to take corrective action when it is getting out of alignment.	**Strategic planning is holistic, continually reviewed, and the strategy is updated to align with business objectives. Common attributes, where applicable to the IT role, include:** ■ Strategy is clearly defined and communicated throughout the enterprise; ■ Effective governance structure is in place to oversee the execution of the strategy; ■ The IT role has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Effective processes and/or governance in place to ensure ongoing alignment with DTMB's overall IT Strategy, and to take corrective action when it is getting out of alignment.

Gartner TOPSS Maturity Model

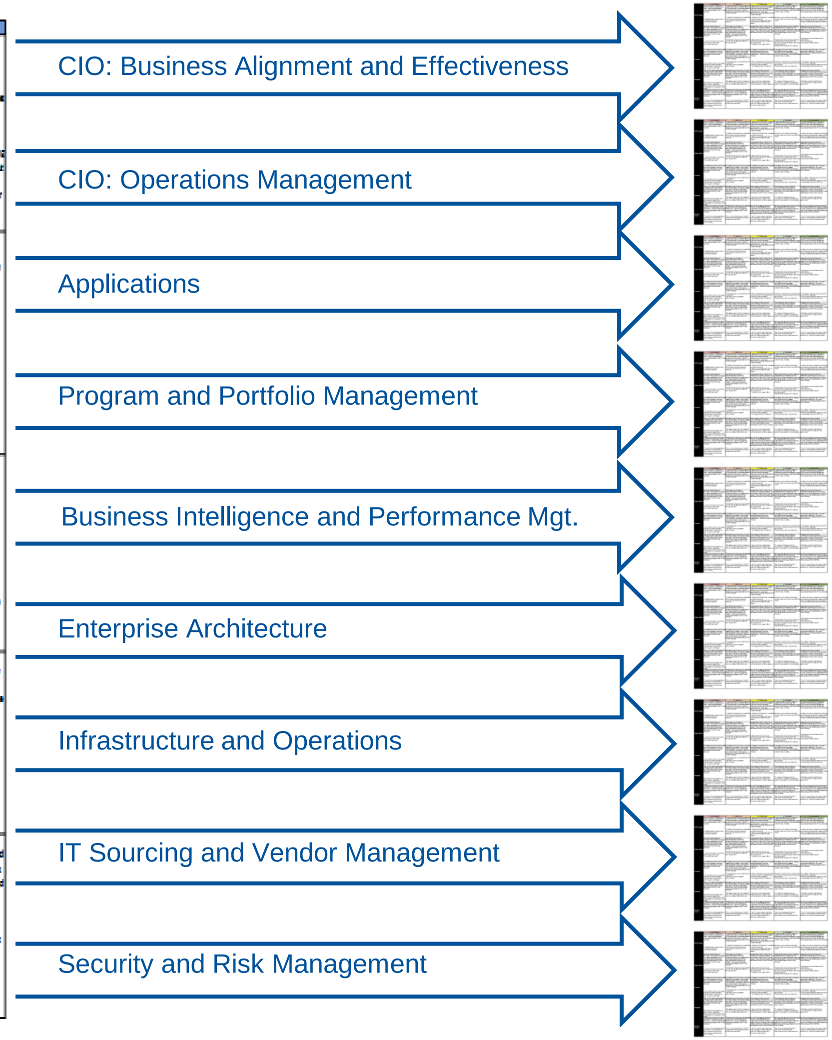
Service Level

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
IT support services not clearly defined or negotiated with the customer. Common attributes, where applicable to the IT role, include: ■ No service-level agreements or metrics for which they are accountable to either end customers or other groups within DTMB; ■ No means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**IT support services are provided, but performance is not effectively measured. Common attributes, where applicable to the IT role, include:** ■ No or few objectives or metrics are defined for specific services, or across the enterprise; ■ Has service-level agreements and metrics for which they are accountable to either end customers or other groups within DTMB; ■ Ability to accurately calculate those metrics is limited; ■ Little means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means to continuously improve customer satisfaction.	**Service-level agreements and metrics are established and the organization is accountable to end customers and other groups within DTMB. Common attributes, where applicable to the IT role, include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups partially believe to be accurate; ■ IT role is partially able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Service-level agreements and metrics are established, and the IT support organization is managing to agreed upon service level. Common attributes, where applicable to the IT role, include:** ■ Service-level agreements and metrics for which they are accountable to end customers and other groups within DTMB, benchmarked against peers; ■ Ability to accurately calculate metrics that end customers mostly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Ability to work toward improving actual delivery to current service-level agreements, but not toward increasing those service levels in the future.	**Service-level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within DTMB. Common attributes, where applicable to the IT role, include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups truly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Means of continuously improving to achieve better levels of customer satisfaction and to increase service; ■ Servlce levels support chargeback and other financial allocation mechanisms to deliver cost-effective and high-quality services.

Gartner TOPSS Maturity Model

Tailored to the Nine IT Roles to Assess Maturity for the Each Area

	1 — Not Present	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Technology	No, or limited IT systems or tools in place to support the role. Common attributes, where applicable to the IT role, include: * Ineffective or no standards * Siloed IT Domains * No consolidation	IT systems and tools are present to support the role, however there is no coordination or standardization across the enterprise. Common attributes, where applicable to the IT role, include: * Ineffective systems and moderate to complex workarounds exist * Key standards exist and are enforce	IT systems and tools are in place to support the role, but have been procured without suitable alignment to user and operational requirements. Common attributes, where applicable to the IT role, include: * Ineffective systems and moderate workarounds exist * System have been significantly customized to meet end user needs.	IT support systems are in place to support the IT role across the enterprise and are consistently used. Common attributes, where applicable to the IT role, include: * System procurement and design incorporated end user and enterprise needs	IT support systems are in place and support the enterprise's ability to improve and optimize operational performance. Common attributes, where applicable to the IT role, include: * System flexibility to adapt to changing business and operational needs without requiring large levels of customization. * Highly scalable and elastic architecture
Organization	No clear organizational structure or overall ownership of responsibilities for the IT role across the enterprise. Common attributes, where applicable to the IT role, include: * "Hero-oriented" culture and reliance on individuals * Low staffing levels *	Ownership of IT support responsibilities within the enterprise exists, but organization is immature and some of the appropriate skill sets are not present. Common attributes, where applicable to the IT role, include: * Organizational structure is defined but it is not aligned for effective service delivery	Organization fairly mature and exhibits some best practices. Skill sets largely align with IT support needs. Common attributes, where applicable to the IT role, include: * Organizational structure is defined and aligned for effective service delivery * Process driven organization	Organizational structure is defined and aligned for effective service delivery with appropriately resourced and skilled staff. Common attributes, where applicable to the IT role, include: * Organizational structure is defined and aligned for effective service delivery with appropriately resourced and skilled staff * Established program for ongoing	Organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes, where applicable to the IT role, include: \ * Customer and business focused organization * Virtual teaming * Business/IT Staff rotation
Process	Processes to support the IT role are non-existent, or ad-hoc. Common attributes, where applicable to the IT role, include: * Completely ad hoc processes that are not documented, standardized, measured, or continuously improved *	Processes to support the IT role are largely documented, but limited standardization and inconsistent from location to location, business unit to business unit. Common attributes, where applicable to the IT role, include: * Processes are not well defined nor repeatable * Some or most processes documented	Processes to support the IT role are standardized and and are consistently applied to the organization. Common attributes include: * Some processes and procedures may be manual or inefficient and workarounds are present. * No measurement or means of	Processes to support the IT role are well defined and managed consistently across the enterprise. Common attributes, where applicable to the IT role, include: * Systems, methods, and practices are followed with appropriate control and governance * Mechanisms are in place across	Processes to support the IT role are mature and efficient. Common attributes, where applicable to the IT role, include: * Processes, methods, and supporting systems are integrated * Control/governance mechanisms are in place feed a cycle of continual
Strategy	There is no defined strategy or strategic planning function. Common attributes, where applicable to the IT role, include: * Operational process and/or technology investment decisions are made locally and independently (in isolation of the wider	Strategic planning occurs, but it is not coordinated, not clearly defined and does not have measurable objectives. Common attributes, where applicable to the IT role, include: * Strategy does not fully integrate with the wider organization nor is it communicated enterprise-wide.	The strategy is defined and communicated, however it is not effectively translated into action. Common attributes, where applicable to the IT role, include: * Governance is inadequately established, allowing for the implementation of the strategy to	The strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes, where applicable to the IT role, include: * An appropriate governance structure is in place to oversee and ensure the execution of the strategy. *	Strategic planning is holistic, continually reviewed and the strategy is updated to align with business objectives. Common attributes, where applicable to the IT role, include: * Strategy is clearly defined and communication throughout the enterprise *
Service Levels	IT support services not clearly defined or negotiated with the customer. Common attributes, where applicable to the IT role, include: * No service level agreements or metrics for which they are accountable to either end customers or other groups within OTMS.	IT support services are provided but performance is not effectively measured. Common attributes, where applicable to the IT role, include: * No, or few objectives or metrics are defined for specific services, or across the enterprise.	Service level agreements and metrics are established and organization is accountable to end customers and other groups within OTMS. Common attributes, where applicable to the IT role, include: * Ability to accurately calculate metrics that end customers and other OTMS group partially believe to be accurate.	Service level agreements and metrics are established and IT support organization is managing to agreed upon service levels. Common attributes, where applicable to the IT role, include: * Service level agreements and metrics for which they are accountable to end customers and	Service level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within OTMS. * Ability to accurately calculate metrics that end customers and other OTMS groups truly believe to be accurate.



Gartner

Gartner TOPSS Maturity Model

Alignment with State Project Goals and Assessment Methods Utilized, by Role

- As noted earlier, Gartner employed a combination of qualitative and quantitative tools to assess each role depending on: 1) The nature of the functions within the role, and 2) The suitability of a direct comparison to peer groups vs. measuring alignment with industry best practices.

IT Role	SOM Processes and Capabilities	Qualitative Assessment Methods	Quantitative Assessment Methods
1. CIO: Business Alignment and Effectiveness	■ Collaboration, Partnerships and Shared Services ■ IT agency/business operational model ■ Customer Service Management and Operations	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation	■ ITBE
2. CIO: Operations Management	■ People: Human Resources ■ Governance ■ Organizational structure ■ Change and innovation management ■ Social Media strategy ■ Communications ■ Budgeting, Financial Management and Rate Structure comparisons	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ ITBE ■ Applications Benchmark ■ Infrastructure Benchmark ■ Skills Inventory
3. Applications	■ Application technologies and services ■ Web and portal services	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Applications Benchmark ■ Skills Inventory

Gartner's Integrated IT Assessment Framework

Alignment with State Project Goals and Assessment Methods

IT Role	SOM Processes and Capabilities	Qualitative Assessment Methods	Quantitative Assessment Methods
4. Program and Portfolio Management	■ Program and Portfolio Management	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Skills Inventory
5. Business Intelligence and Performance Mgt.	■ Accountability and Performance Management	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Skills Inventory
6. Enterprise Architecture	■ Information Management ■ Enterprise Architecture	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Skills Inventory
7. Infrastructure and Operations	■ Infrastructure platforms and services ■ Communications and Network ■ Cloud Environment Options ■ Mobility	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Infrastructure Benchmark ■ Skills Inventory
8. IT Sourcing and Vendor Management	■ Sourcing and Procurement ■ IT Vendor Management	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Peer Comparison ■ Skills Inventory
9. Security and Risk Management	■ Security, Risk Management and Disaster Recovery, Business Continuity	■ Maturity Scale (Best Practices) ■ IT Score/Gartner Research ■ Interviews/Documentation Review	■ Skills Inventory

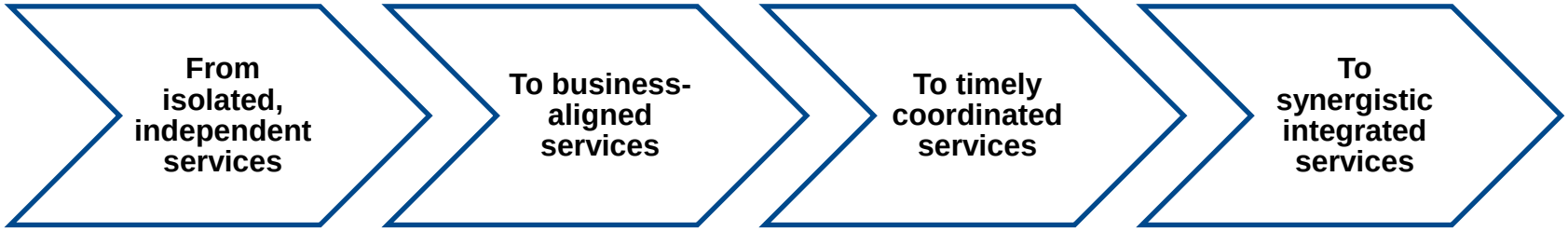
Current State Assessment and Maturity Analysis

CIO — Business Alignment and Effectiveness

CIO — Business Alignment and Effectiveness

Role Definition — Key Management Objectives for IT Leadership: Alignment, Coordination and Integration

- Focus on these objectives to deliver the business value of services



DTMB is currently in the process of moving from isolated services to business-aligned services.

CIO — Business Alignment and Effectiveness

Current State Overview

- DTMB is currently providing shared IT technology services across 21 State agencies and entities, and to a limited number of local/county government agencies.
  - Examples of shared services include Broadband/Telecommunications, GIS, MIDeal, Application Development and Maintenance, and Infrastructure Services.
  - Some policies and standards have been established for shared services, such as EO 2009-55, which formalized IT-business alignment, fully integrating IT and business management processes.
  - DTMB has begun to move from isolated, independent services to shared, business-aligned services.
- DTMB has established various processes for the delivery of shared services to customer agencies.
  - Communication and reporting processes have been implemented department-wide to ensure that division and program areas are collecting the right measures and that these are utilized for ongoing improvement.
  - A technical and executive review board process is in place to grant policy exceptions for agency needs.
  - DTMB has processes in place for agencies requesting services and reporting service problems (i.e., Remedy).

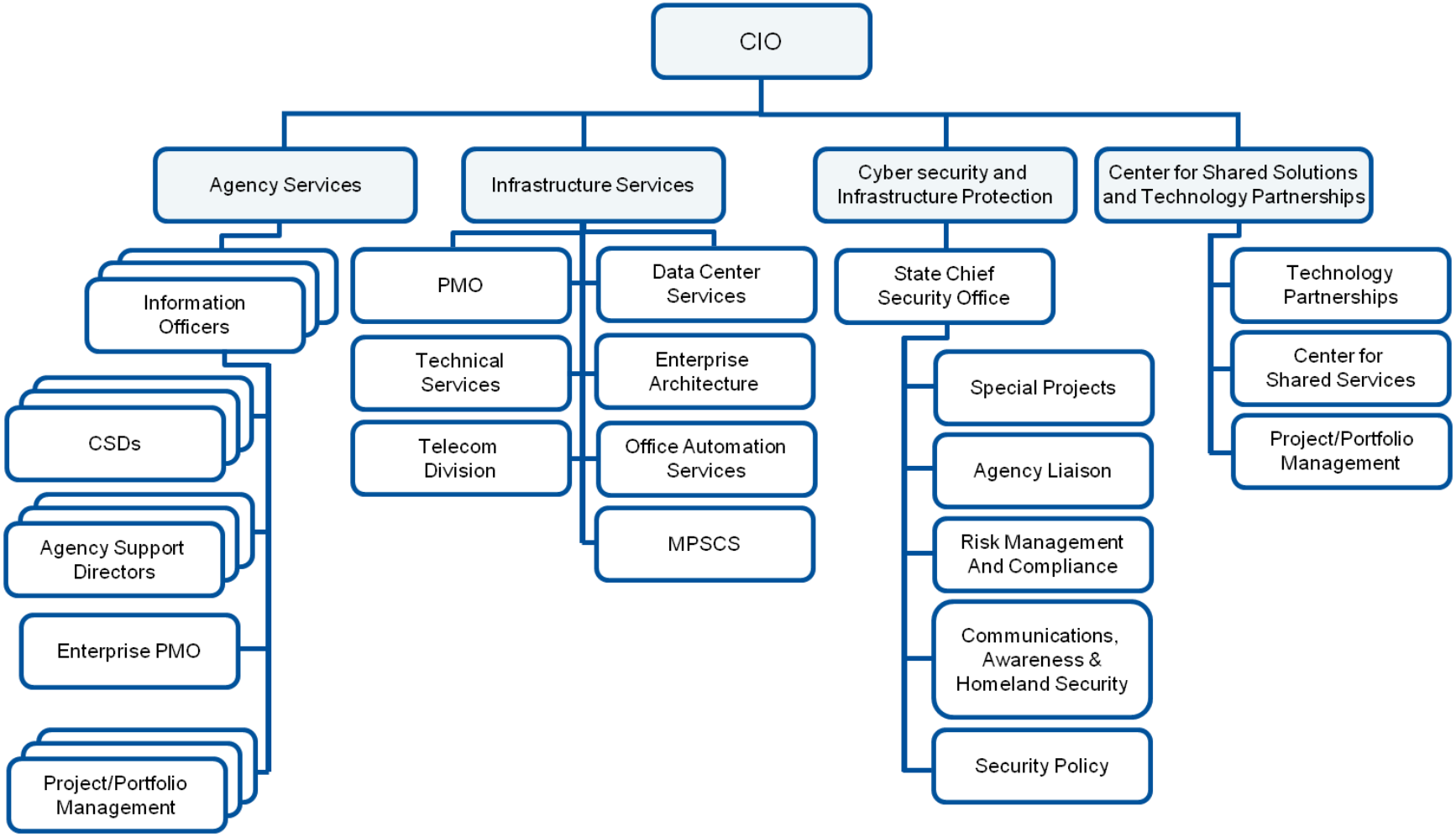
CIO — Business Alignment and Effectiveness

Current State Overview (continued)

- Within DTMB there is an Office of Enterprise Development, which is responsible for outreach and strategic planning.
- DTMB has a forward-looking vision that aims to position DTMB as an innovative, customer-centric agency.
  - DTMB would like to expand partnerships to include private sector, federal government, other state and local government agencies.
  - DTMB has ambitions to be “best in class” across all vertical industries — not just state government.
  - To execute on its vision, DTMB does have an enterprisewide, documented, strategic plan in place, with several supporting strategies in place (e.g., Mobile strategy, MiCloud).
  - The Office of Enterprise Development (and, to a lesser extent, the Enterprise Portfolio Management Office) is tasked with aligning agency IT strategy to State strategy.
- IT strategy development at the agency level varies among agencies, with each agency having its own process for strategic development. Likewise, agencies are at various maturity levels with regard to having documented strategies in place.
- Infrastructure Services has several service catalogs for services, and numerous service-level agreements in place for service offerings, while Agency Services has a relatively immature service catalog.

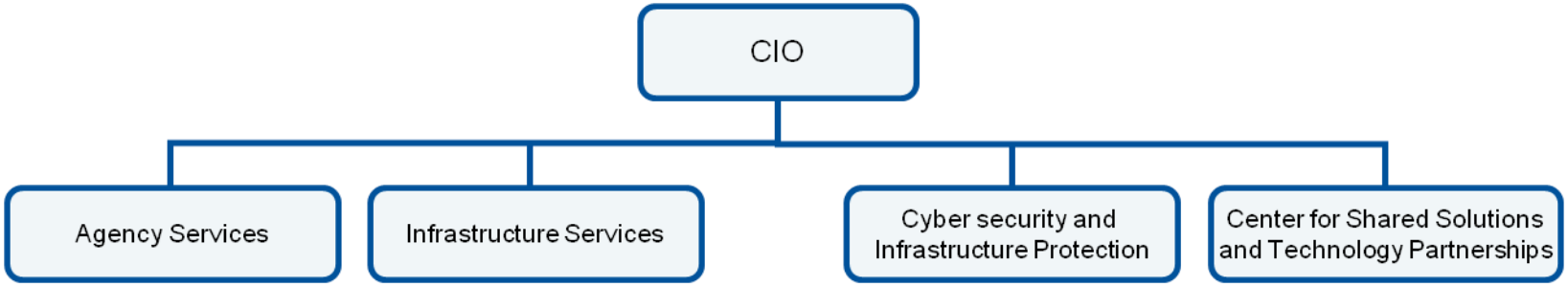
CIO — Business Alignment and Effectiveness

Current State Overview — IT Organization Chart



CIO — Business Alignment and Effectiveness

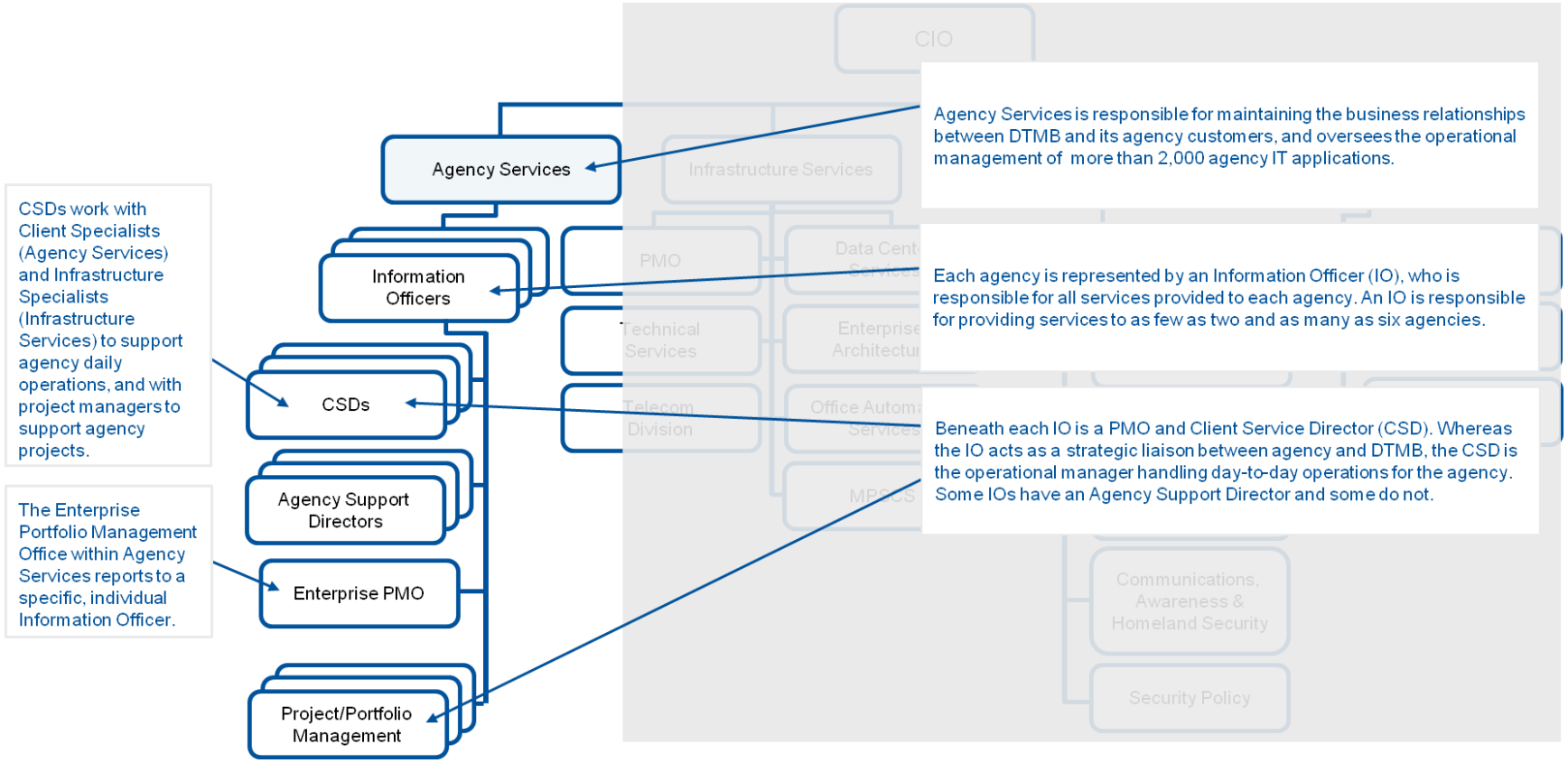
Current State Overview — IT Organization Chart With Mapped Job Skills



Agency Services	Infrastructure Services	Cyber security and Infrastructure Protection	Center for Shared Solutions and Technology Partnerships
Application Development	Application Development	Architecture	Application Development
Architecture	Architecture	IT Leadership	Architecture
Business Analysis	Business Analysis	IT Security	Business Intelligence
Business Continuance	Business Intelligence	Telecommunications	Client Technology/Desktop Support
Business Intelligence	Client Technology/Desktop Support		Customer Support/Help Desk
Client Technology/Desktop Support	Computer Operations		Database Administration
Computer Operations	Customer Support/Help Desk		Database Analysis
Customer Support/Help Desk	Database Administration		IT Leadership
Database Administration	Database Analysis		Project Management
IT Leadership	IT Leadership		Relationship Management
IT Security	IT Security		Systems Administration
Network Management	Project Management		Web Administration
Project Management	Quality Assurance		Web Design
Quality Assurance	Relationship Management		Other
Relationship Management	Release Management		
Systems Administration	Systems Administration		
Telecommunications	Web Administration		
Web Design	Web Design		
Other	Other		

CIO — Business Alignment and Effectiveness

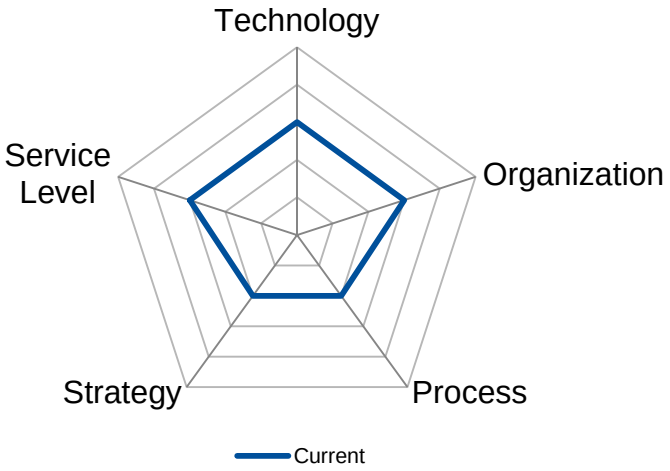
Current State Overview — Agency Services



CIO — Business Alignment and Effectiveness

Major Findings

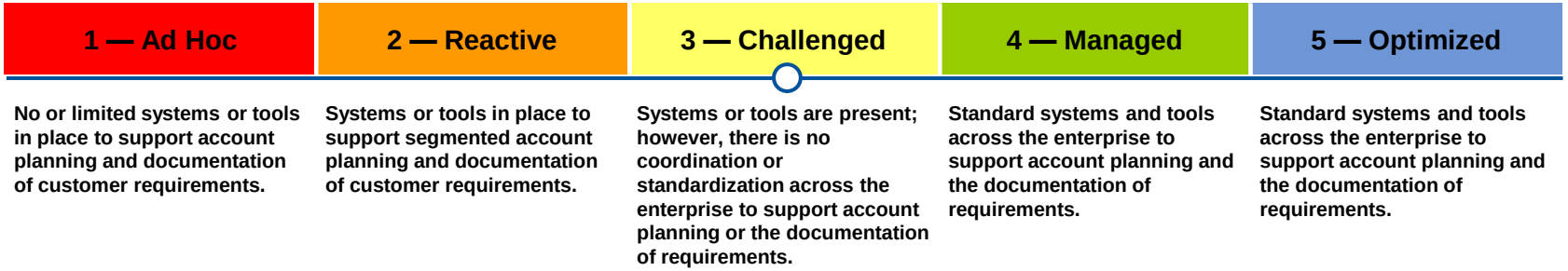
- **DTMB is not viewed as a customer-service-oriented organization and may be failing to incorporate business needs into the IT strategy.**
  - Bottom Line: Only 16% of agencies that participated in the ITBE survey reported that they viewed DTMB as a strategic partner that is fully aligned with their agency strategy and an integral part of their business.
- **Metrics and Service Level Agreements (SLAs) provided to DTMB customers are not descriptive and do not meet customer needs; many customers are unaware of SLAs.**
  - Bottom Line: DTMB needs to better develop SLAs that meet customer needs. Furthermore, DTMB needs to provide consistent metrics on SLA performance and communicate those with customers.



- **Inconsistent usage of a business analyst across the agencies.**
  - Bottom Line: Some agencies supply business analysts, while other agencies expect DTMB to provide business analysts so that they understand the agency's business. This ambiguity leads to inconsistent expectations from agencies. In some instances, the project manager becomes the de facto business analyst. This confusion can impact the quality of functional requirements and exacerbate customer frustrations.
- **Partnership opportunities with local government agencies could be greatly improved.**
  - Bottom Line: Local governments are finding DTMB services prohibitively expensive as a result of services not meeting their specific business needs, and express that DTMB does not effectively partner with them to understand customer requirements.

CIO — Business Alignment and Effectiveness

Current State Technology Assessment



CIO — Business Alignment and Effectiveness

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ Shared Services from the infrastructure side are mature. ■ DTMB is currently using or in the process of adopting many industry-leading technology solutions to provide basic services to customer agencies (code development and testing, servers, storage, etc.).	■ Tools are in place to provide for customer needs, although there is not always standardization and coordination around tools. ■ There is a sense that DTMB is slow to pick up on new technology trends and is often not coming to customers with innovative new technology solutions. ■ Technologies for accounting and billing to agencies are not fully automated and include manual inputs, often leading to longer delivery times for customers. ■ DTMB is not fulfilling mobile provisioning rapidly enough to satisfy customer demand. ■ Local governments often find the cost of DTMB's IT services to be prohibitively expensive (e.g., 800 MHZ dispatch system). This is often a result of DTMB technology solutions not meeting local government business requirements.

CIO — Business Alignment and Effectiveness

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of responsibilities for client service delivery across the enterprise. Common attributes include: ■ DTMB does not have enough adequately trained staff to support account planning and the documentation of requirements.	**Ownership of client service delivery responsibilities within the enterprise exists, but the organization is immature and appropriate skill sets are not present. Common attributes include:** ■ DTMB has staff that has received some of the necessary training (but needs more training) to be adequately prepared to support account planning and the documentation of requirements.	**Ownership of client service delivery responsibilities within the enterprise exists, is fairly mature, and exhibits some best practices. Client service delivery skill sets largely align with IT support needs. Common attributes include:** ■ DTMB has adequately trained resources but is understaffed, which limits the organization's ability to support account planning and the documentation of requirements.	**Client service delivery organization is integrated with other key processes and IT roles, and is appropriately organized and staffed. Common attributes include:** ■ DTMB has a sufficient number of adequately trained resources to support account planning and the documentation of requirements.	**Client service delivery processes are mature and efficient. Common attributes include:** ■ DTMB has a sufficient number of proficient resources to support account planning and documentation of requirements; each role documented as responsible, accountable, consulted and informed.

CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ DTMB staff is largely regarded by customers as adequately skilled to provide basic IT services. The Job Skills Assessment showed that DTMB ranked above average from an overall skills perspective, with 38% of self-assessed skills being at “Advanced” or “Master” levels. ■ Agency customers repeatedly reported a feeling that DTMB, especially at the higher managerial levels, was committed to improving service. ■ New executive leadership is regarded positively by agency customers. ■ The Agency Services organizational model has placed accountability and ownership for customer needs at the IO level in an effort to make DTMB more responsive to customer needs. This “ownership” organizational model aligns with DTMB’s vision to be customer-centric. ■ Skills inventory revealed significant “bench strength” for many skills. ■ DTMB adequately keeps external stakeholders, including press organizations, informed of new DTMB-related initiatives, milestones and accomplishments. Likewise, from an internal perspective, executive communication to DTMB staff is adequate. ■ In 2011 DTMB rolled out the Open Michigan website that makes it easier for citizens and businesses to learn about DTMB efforts.	■ IT Leadership and Relationship Management skills within DTMB are limited. ■ Agency Services, although dependent on Infrastructure Services to deliver customer services, has no direct authority over the group and few formalized resources to ensure services are delivered in a timely manner that meets customer expectations. ■ A high degree of variability exists with regard to the relationship IOs have with agency customers, and IOs are often working with agencies at an operational level. Additionally, the IT Business Effectiveness survey showed the variability of agency satisfaction did not correlate with individual IOs, as often the same IO would be responsible for both comparatively satisfied and unsatisfied agencies. ■ A lack of succession planning and knowledge transfer from vendors is common (e.g., spent $256M for a single vendor without the requisite knowledge transfer). ■ Portfolio Management is relatively immature from an organization perspective, with challenges occurring at an enterprise level, making it difficult to understand overall demand and capacity to optimize resources. ■ Several agencies reported a lack of clarity regarding ownership of issues, thus increasing the time to resolve issues. ■ While internal and press communications are adequate, communication to agency customers and local governments could be improved. Local government entities consistently reported a general lack of communication with DTMB, and several agencies implied a desire for increased communication with DTMB from an organizational level.

CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale — Job Skills

- Based on the skills inventory, DTMB is above average on skill maturity, matching customer feedback that DTMB had the overall skills to deliver basic services.
- 38% of critical skills were self-assessed at “Advanced” or “Master” levels; as a rule of thumb, an organization should have more than 30%.

Industry Benchmark Skill Proficiency Comparison

% of Skills at Each Proficiency Level

	Limited	Basic	Intermediate	Advanced	Master
DTMB	6%	19%	37%	31%	7%
Public	8%	23%	35%	29%	6%
Private	7%	23%	38%	28%	5%

CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale — Job Skills

- IT Leadership and Relationship Management were among the least skilled job families within DTMB, which can significantly hamper CIO Business Alignment and Effectiveness.

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Client Technology/Desktop Support	31	38	32	101	68%
Web Administration	4	3	5	12	58%
Quality Assurance	7	4	10	21	52%
Systems Administration	25	14	43	82	48%
Application Development	48	78	163	289	44%
Network Management	6	7	19	32	41%
Database Analysis	2	3	8	13	38%
Database Administration	14	7	35	56	38%
Web Design	5	8	22	35	37%
Telecommunications	7	8	32	47	32%
IT Security	2	5	15	22	32%
Business Analysis	3	13	37	53	30%
Architecture	3	6	22	31	29%
Business Intelligence	1	3	10	14	29%
Project Management	12	16	80	108	26%
Customer Support/Help Desk	4	19	66	89	26%
Computer Operations	1	12	46	59	22%
IT Leadership	10	17	96	123	22%
Business Continuance	1	0	4	5	20%
Release Management	1	1	8	10	20%
Relationship Management	2	1	38	41	7%

Highly Qualified = Q score 75% or higher; **Qualified** = Q score between 50% and 75%; **Less-Qualified** = Q score below 50%

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CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale — Capabilities by IT Leadership Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
IT Leadership	10	17	96	123	22%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Budget/Finance	19.5%
Business Processes	39.8%
Business Strategic Planning	26.0%
Change Management	41.5%
Employee Coaching / Career Development	52.8%
Employee Performance Management	43.1%
Governance	24.4%
IT Planning: Tactical, Strategic	37.4%
Leadership & Direction Setting	44.7%
Staffing, Hiring, Selection	56.1%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Building Partnerships	33.3%	48.0%	18.7%
Change Advocate	29.3%	54.5%	16.3%
Decision Making	28.5%	47.2%	24.4%
Initiating Action	30.1%	52.8%	17.1%
Strategic Planning	48.0%	43.9%	8.1%

At or Above 60% 40% to <60% Below <40%

While IT Leadership possess adequate skills in the “harder” foundational skills, they reported a concerning lack of skill in critical competencies or “soft skills.”

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	17
Qualified	66
HQ+Q	83

CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale — Capabilities by Relationship Management Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Relationship Management	2	1	38	41	7%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Business Assessment	17.1%
Business Case Development	14.6%
Business Cost Benefit Analysis	7.3%
Business Definition Requirements	12.2%
Business Feasibility Studies	9.8%
Business Processes	24.4%
Business Strategic Planning	12.2%
Enterprise Products/Services	4.9%
IT Trends & Directions	7.3%
Risk Management	4.9%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Building Partnerships	26.8%	41.5%	31.7%
Change Advocate	46.3%	29.3%	24.4%
Consulting	34.1%	39.0%	26.8%
Information Seeking	43.9%	39.0%	17.1%
Innovation	41.5%	41.5%	17.1%

At or Above 60% 40% to <60% Below <40%

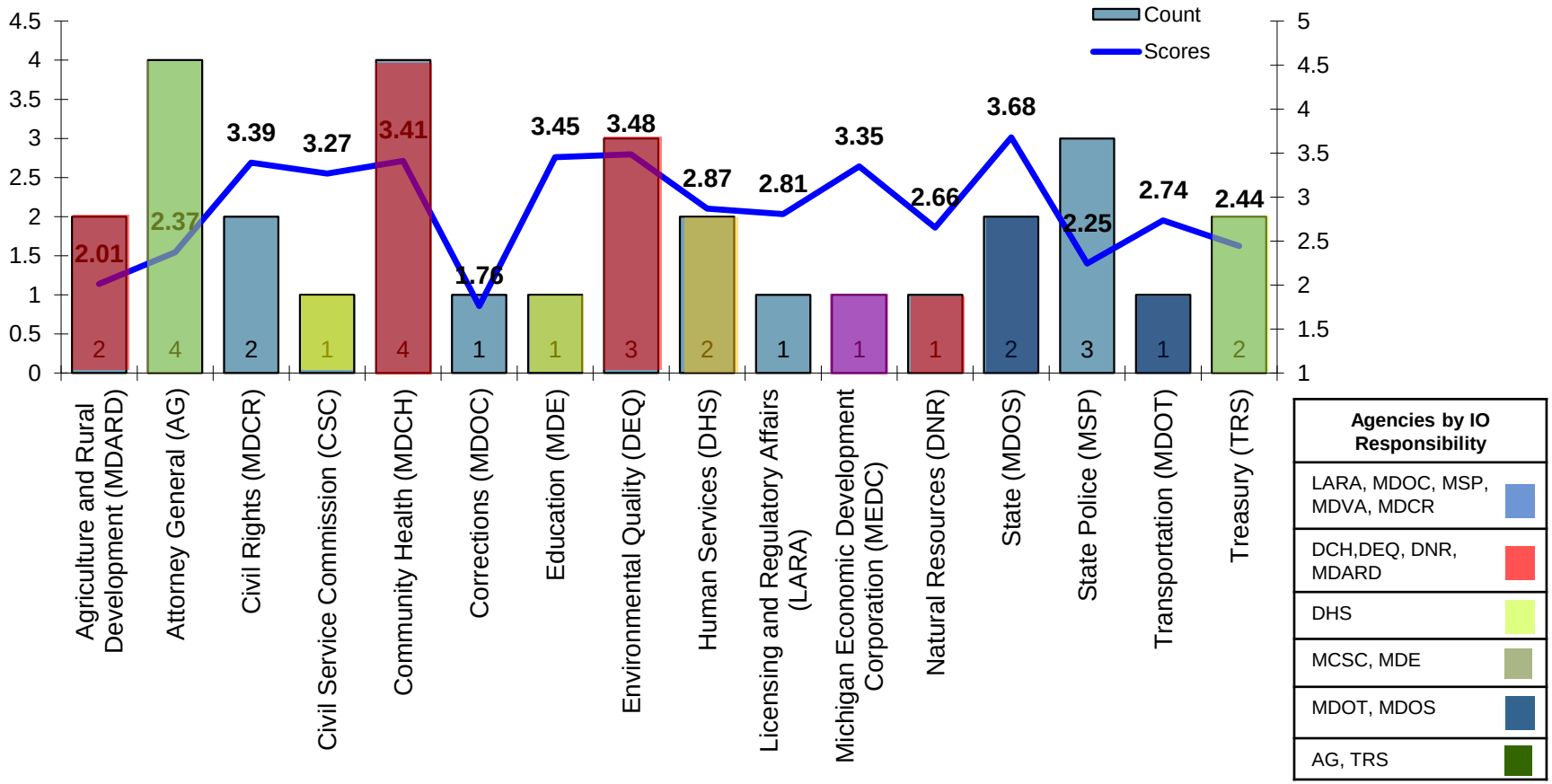
- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	15
Qualified	48
HQ+Q	63

CIO — Business Alignment and Effectiveness

Current State Organization Assessment Rationale — Job Skills

- Agency satisfaction was not correlated with the performance of individual IOs, as it is often the case that the same IO will be responsible for both comparatively satisfied and unsatisfied agencies.



CIO — Business Alignment and Effectiveness

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Client service delivery processes are non-existent, or ad hoc. Common attributes include: ■ DTMB is not involved with customer-agency IT investment management decisions; ■ DTMB does not have documented processes to support account planning and documentation of requirements.	**Client service delivery processes are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes include:** ■ DTMB is inconsistently involved with customer-agency IT investment decisions; ■ DTMB has different ad hoc processes to support account planning and documentation of requirements.	**Client service delivery processes are standardized and documented, and are consistently applied to the organization. Common attributes include:** ■ DTMB is consistently involved with customer-agency IT investment decisions — mostly in costing and conducting impact analyses; ■ DTMB has a standard, documented process to support account planning and documentation of requirements.	**Client service delivery processes are well defined and managed consistently across the enterprise. Common attributes include:** ■ DTMB is highly involved with customer-agency IT investment decisions — including business case preparation (benefits identification, costing, impact analyses, risk analyses, etc.); ■ DTMB has a standard, documented process to support account planning and documentation of requirements.	**Client service delivery processes are mature and efficient. Common attributes include:** ■ DTMB is highly involved with customer-agency IT investment decisions — including business case preparation (benefits identification, costing, impact analyses, risk analyses, etc.); ■ DTMB monitors and reports on progress of the investment (i.e., is it on budget, is it delivering the projected ROI, etc.); ■ DTMB has defined SLOs for each customer agency; ■ DTMB has a standard, documented process to support account planning and documentation of requirements.

CIO — Business Alignment and Effectiveness

Current State Process Assessment Rationale

Strengths	Weaknesses
■ DTMB has several documented processes for services on behalf of agencies (e.g., procurement, incident response and policy exception). ■ DTMB has a documented process in place for agency customers to directly request services of Agency Services and report issues.	■ Several documented processes exist, but many are not routinely followed (e.g., Call for Projects process, information input into ChangePoint). As a result, inconsistent process discipline leads to inefficiencies and lack of standardization in some areas. ■ Communication between Agency Services and Infrastructure Services is often reliant on informal relationships rather than formal processes. ■ Enterprise Architecture policies and processes are often misaligned with those of Agency Services, resulting in less-than-desirable customer service. ■ Currently there is no standardized, enterprisewide process for reviewing benefits realization or ROI for DTMB initiatives on behalf of agencies. As a result, DTMB projects are not being continuously evaluated to ensure that they are delivering on their business case. ■ A standard process for developing a proposal for a new service to an agency customer is not in place. Likewise, some shared services initiatives are taking place at the IO level, without the involvement of the Office of Shared Solutions. ■ Local government entities report that they have not been asked to participate in requirements definition processes for potential shared services. Consequently, local governments do not feel that there is a real sense of partnership in developing potential mutually beneficial shared services and, as a result, many proposed State services do not meet their requirements.

CIO — Business Alignment and Effectiveness

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no strategy or strategic planning function. Common attributes include: ■ DTMB has not worked with customer-agencies to develop strategic plans and has no enterprise strategic plan; ■ Strategic planning is not performed across the organization; ■ Operational process and/or technology investment decisions are made locally and independently (in isolation of the wider enterprise) as funding is made available.	**High-level client service delivery strategy is defined but does not have measurable objectives. IT strategy partially aligned with customer business strategies. Common attributes include:** ■ DTMB has worked with customer-agencies to develop agency-specific strategic plans. These individual strategies do not take into account the wider organization, nor are they communicated enterprisewide; ■ Strategic planning occurs for each customer-agency, but it is not coordinated, not clearly defined, and does not have measurable objectives; ■ Strategic planning efforts do not take into account the wider organization, nor are they communicated enterprisewide.	**Client service delivery strategy is defined and communicated; however, it is not effectively translated into consistent action. IT strategy is mostly aligned with customer business strategies. Common attributes include:** ■ Customer agencies have defined strategic plan; A high-level enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ Strategic plans for the agency and DTMB are defined and communicated; however, they are not translated into action.	**Client service delivery strategy is clearly defined, communicated and socialized throughout the enterprise. IT strategy is strongly aligned with customer strategies. Common attributes include:** ■ Customer agencies have a defined strategic plan; A detailed enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ Strategy is clearly defined, communicated and socialized throughout the enterprise; ■ Tools, organization and processes are aligned to oversee and ensure the execution of the strategy.	**Client service delivery strategy spans the business and is integrated into enterprise strategic planning, is continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ Customer agencies have defined strategic plan; ■ A detailed enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ Strategic planning is holistic, continually reviewed, and the strategy is updated to align with business objectives; ■ Strategy is clearly defined and communicated throughout the enterprise.

CIO — Business Alignment and Effectiveness

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ DTMB has a clear vision of key strategic objectives (i.e., a customer-centric, innovative IT organization) and strong executive support. ■ The Office of Enterprise Development has been established to oversee the strategic alignment of DTMB initiatives. ■ A formalized, documented, up-to-date enterprise strategic plan is in place and widely available. ■ The State's IT is reasonably well aligned with the State's business strategy, especially as a result of the Department of IT merging with the Department of Management and Budget to form DTMB.	■ There is a wide degree of variability with regard to IOs being considered the strategic partners of agencies. In some instances, the IO is working with agencies at a strategic level, but the IO relationship is not strategic for many agencies. As a result, the nascent IO role yields mixed results, particularly with regard to strategy alignment. – Less than 7% of customers surveyed felt that IT's strategies were fully aligned with their strategic business requirements. – Despite the alignment issues, 90% of customers expect extremely high or high dependency on IT in the future. – Respondents surveyed who viewed DTMB as a strategic partner, rather than as administrative support, had higher satisfaction ratings with DTMB services. ■ Most agencies view themselves as having a limited level of strategy alignment with DTMB ("DTMB does not understand my business."). ■ With regard to presenting a strategy for shared services to local governments, there is a feeling the State has historically been an unresponsive "big brother" that has not effectively gathered their input/requirements for new services.

CIO — Business Alignment and Effectiveness

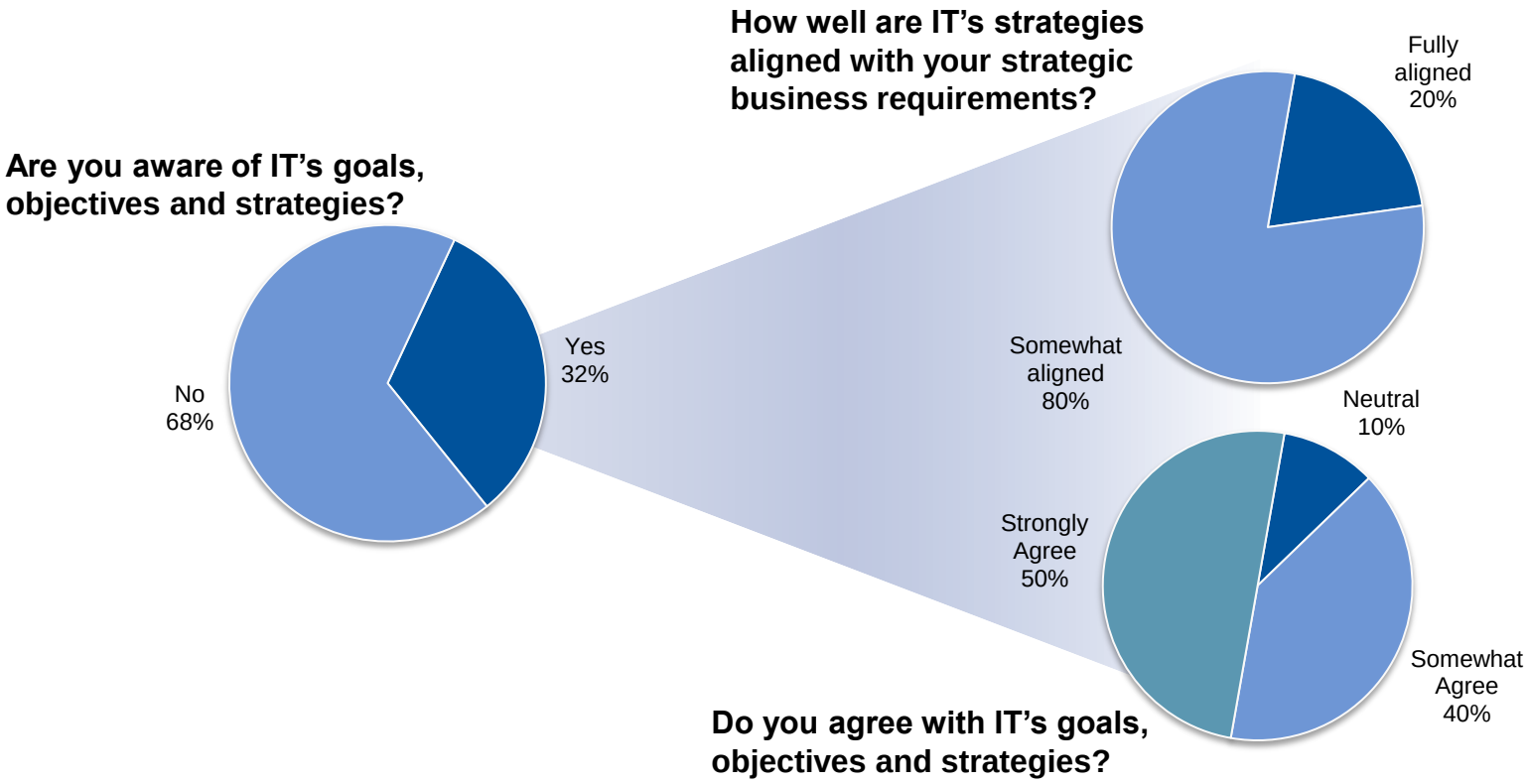
Current State Strategy Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Internal DTMB IT organizations do not seem to have a means of understanding whether or not they are remaining aligned with the overall DTMB IT strategic plan; the only mechanism cited for doing this was the Call for Projects process. ■ Agencies do not think of themselves as strategic partners with DTMB. ■ Based on feedback, local government and DTMB strategy are misaligned.

CIO — Business Alignment and Effectiveness

ITBE Survey Results — Customer Alignment with IT Goals, Objectives and Strategies

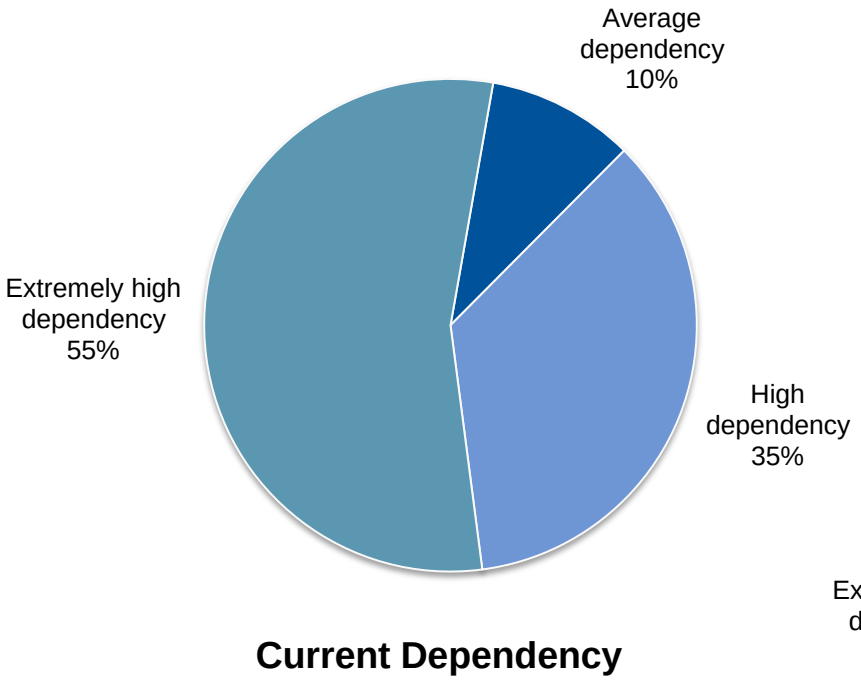
- Less than 7% of customers surveyed felt that IT's strategies were fully aligned with their strategic business requirements.

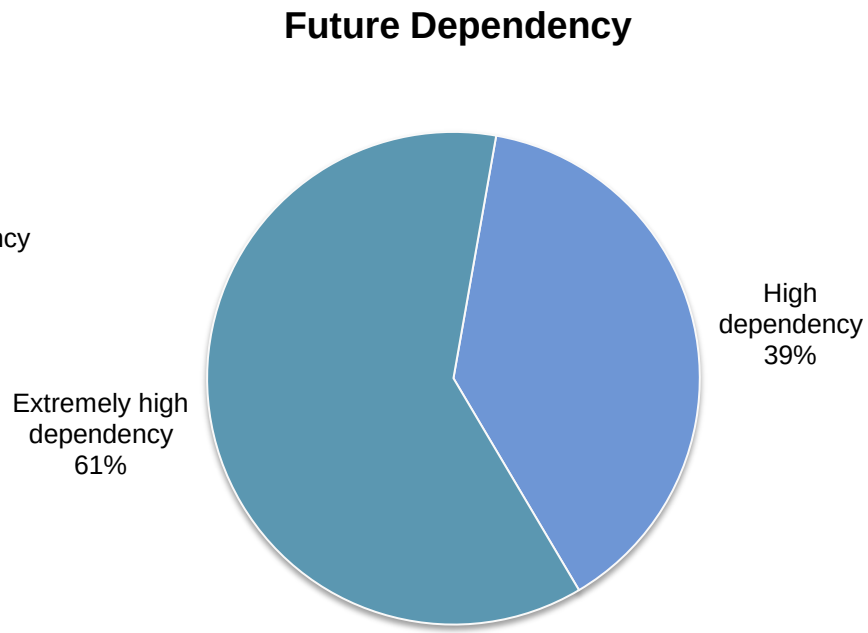


CIO — Business Alignment and Effectiveness

ITBE Survey Results — Customer Dependency on IT

- Despite the alignment issues, 90% of customers currently report having either an extremely high or high dependency on IT.

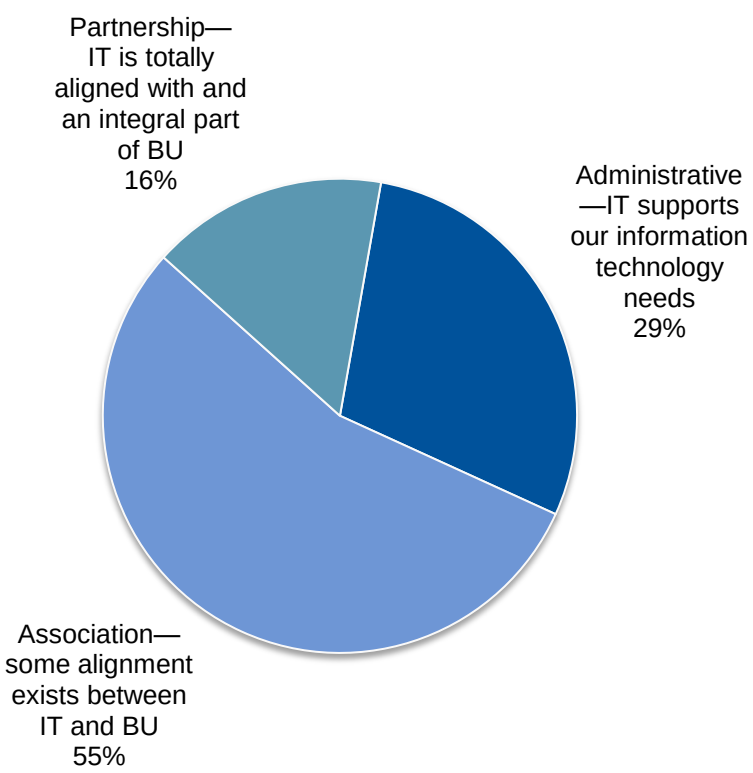


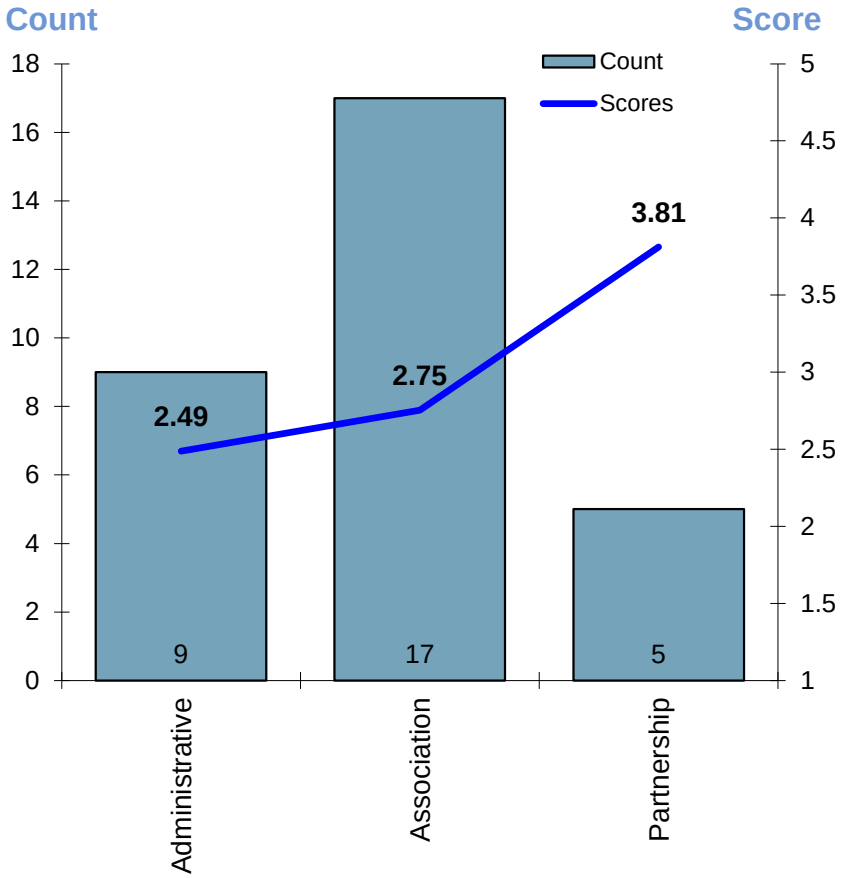


CIO — Business Alignment and Effectiveness

Current State Strategy Assessment Rationale — ITBE Survey Results

- Despite only five of 31 ITBE respondents viewing their relationship with IT as a partnership, 71% of respondents felt there was some, or total, alignment with IT.





CIO — Business Alignment and Effectiveness

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB has not identified any service level objectives tied to the objectives/needs of the customer agencies.	DTMB has informal service level objectives tied to objectives/needs of the customer agencies; No objectives or metrics are defined across the enterprise.	DTMB has defined and documented service level objectives tied to objectives/needs of the customer agencies, but performance is not measured; No objectives or metrics are defined across the enterprise.	DTMB has clearly defined and documented service level objectives tied to objectives/needs of the customer agencies; DTMB has formal processes in place for measuring DTMB's performance against the objectives; DTMB is managing to agreed-upon service level.	Integrated reporting of performance and ongoing improvement within each customer-agency and enterprisewide.

CIO — Business Alignment and Effectiveness

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ DTMB has some service-level agreements in place (such as Agency Partnership Agreements) and is providing customer agencies with some level of information on SLA performance. ■ DTMB was recognized by NASCIO in 2011 for improved service delivery and monitoring technology. ■ DTMB has facilitated the development of five public facing dashboards (MiDashboard, Education, Health and Wellness, Infrastructure and Talent) that provide an at-a-glance view of how the State is performing in areas that affect Michigan citizens. ■ DTMB has assisted the Governor's strategy team and all departments across the State with the development of a plan of action for department-level scorecards. These scorecards will measure performance to highlight and track areas where performance is lacking, meets or exceeds expectations. ■ This year DTMB launched the Michigan Shared Services Community. The new online community allows communities and organizations to work together to find services and resources that can be shared. ■ The State (in collaboration with DTMB) established a multi-state collaborative forum to identify shared opportunities for shared solutions, services and information. Participants include nine states and the province of Ontario.	■ Billing to customer agencies is not intuitive to understand and provides little insight into true project costs — hampering the ability for customers to see the value of DTMB services. Customer: "Explaining billing and invoicing is the biggest challenge — a lot of mistakes, inaccuracies." ■ A lack of customer understanding of costs and market prices compounds a negative view of DTMB service value. ■ DTMB's current Strategic Plan focuses on metrics, and the ePMO office is beginning to standardize some metrics, but measurement by and large is still immature. ■ Many customer agencies report either not being aware of an SLA for DTMB services or having incomplete SLA information for DTMB services. Additionally, for those agencies who are aware of SLA agreements, 48% report that they are not meeting their needs. ■ DTMB provides SLA metrics that do not meet customer needs. ■ Many agency customers reported a reluctance to entrust DTMB with large or advanced IT projects, often trying to circumvent DTMB policy and obtain the services of third-party vendors. ■ DTMB customers reported feeling that they were overcharged relative to the quality of service received. "If you have $10 to get something done, they'll charge you $40, and maybe you'll get it done." Some agencies see themselves as "captive customers."

CIO — Business Alignment and Effectiveness

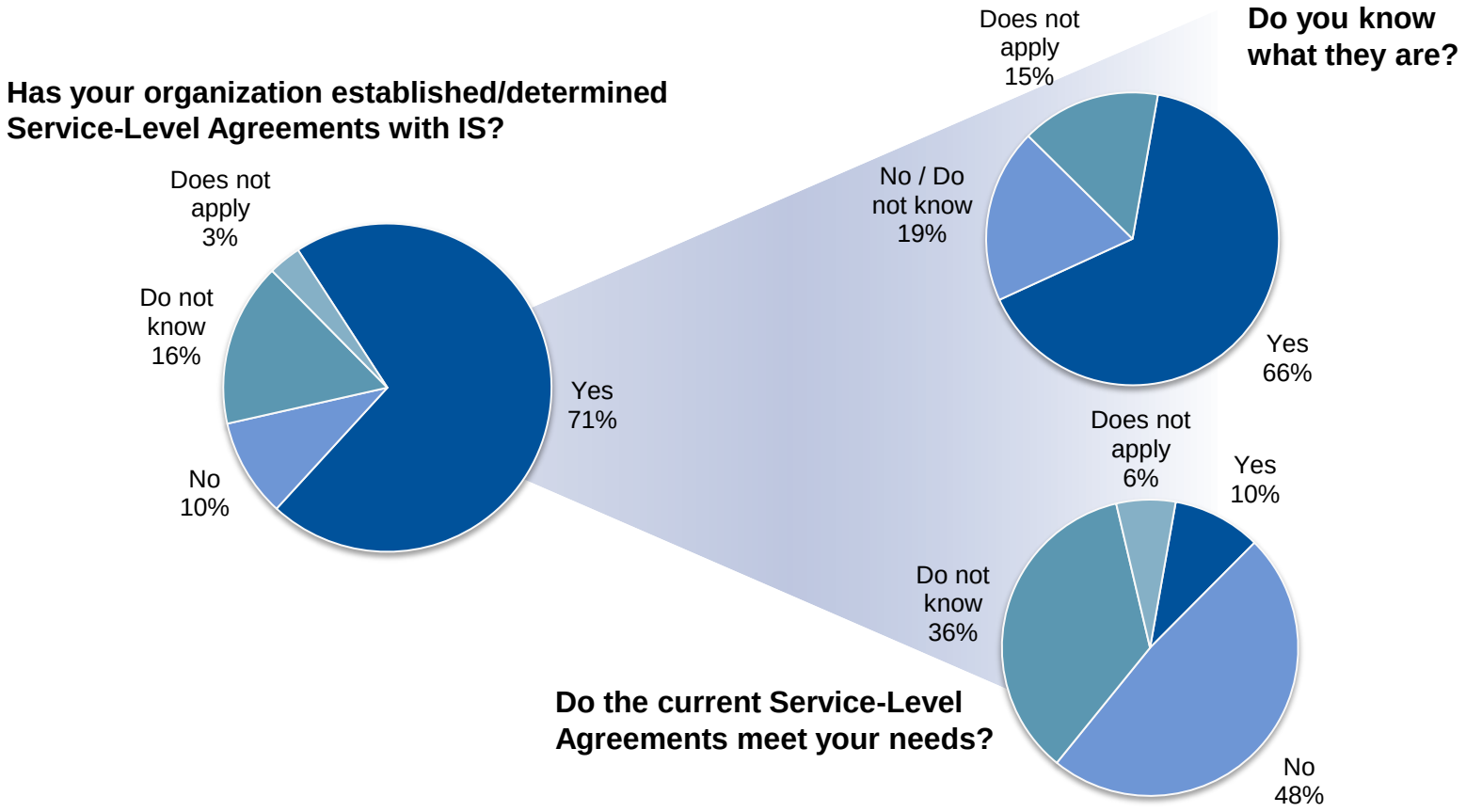
Current State Service Level Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ When comparing Benchmark results with satisfaction ratings provided by the IT Business Effectiveness survey, agencies with a higher support cost (MDOS, DCH, MSP) tended to give higher satisfaction ratings for system quality, service quality and performance.

CIO — Business Alignment and Effectiveness

Current State Service Level Assessment Rationale — ITBE Survey Results

- Based on the ITBE survey, less than 10% of customers felt current service-level agreements met their needs.



Current State Assessment and Maturity Analysis

CIO Perspective — Operations Management

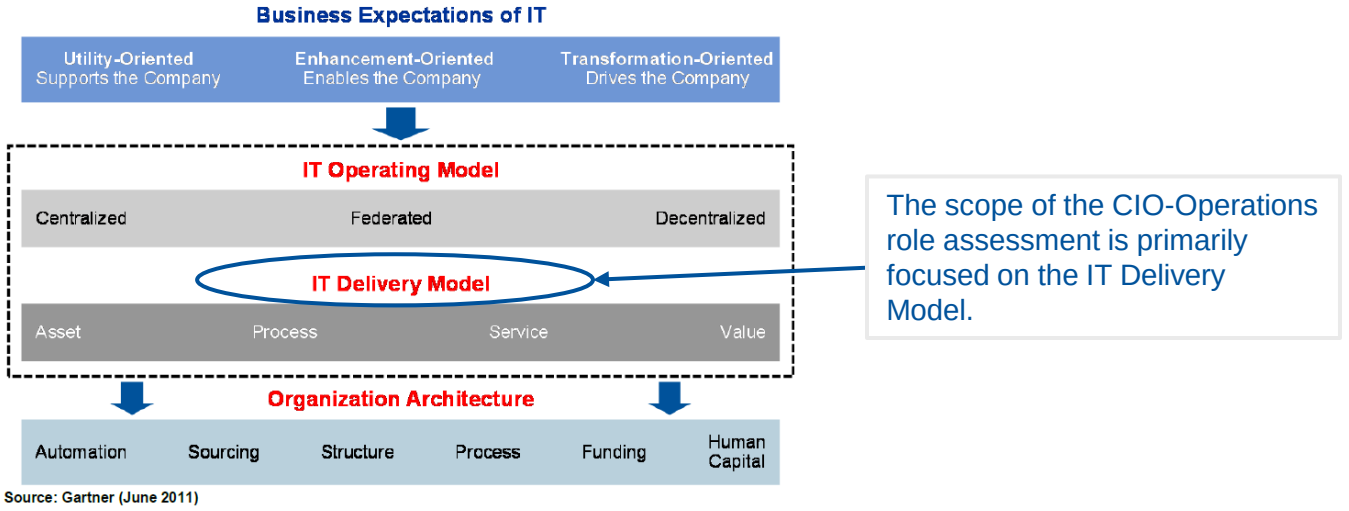
Current State = ○

Target State = ▲

CIO — Operations Management

Role Definition — IT Operating Models vs. IT Delivery Models

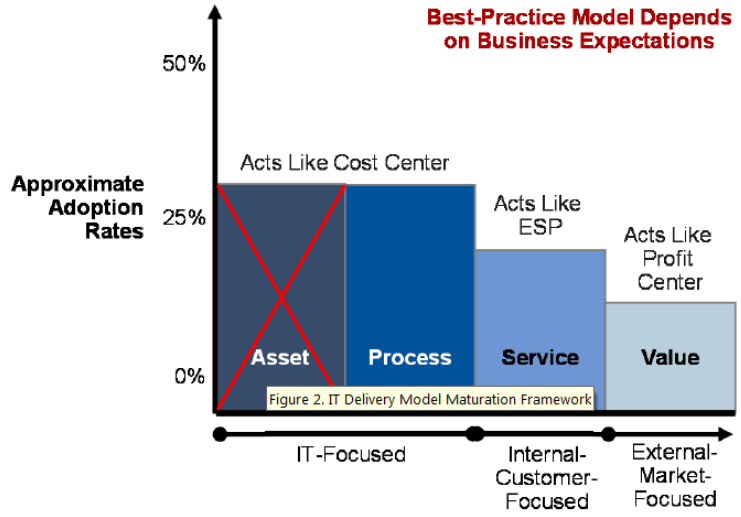
- The following framework was applied to DTMB to evaluate its current operations. This illustration depicts a loose vertical correlation with the business expectations of IT in the enterprise, the choice of operating model, and the "right" IT delivery model in terms of the optimal combination of models.
- **IT Operating Models** are a manifestation of certain implicit governance decisions that define and bind IT spheres of influence. They are accountability frameworks that determine where responsibility and authority for delivering different types of IT value will reside and how the tradeoffs between monopolistic economies of scale and entrepreneurial flexibility will be balanced within the enterprise.
- **The IT Delivery Model** defines the way in which a specific IT organization orchestrates its capabilities to deliver against its core value proposition. The choice of delivery model has explicit implications for the various organizational architecture dimensions. Organizational attributes, such as tools, sourcing, structure, process and people management, are largely dictated by the choice of delivery model and look different for each.



Source: Gartner (June 2011)

CIO — Operations Management

Role Definition — IT Delivery Model



Source: Gartner (June 2011)

- The various IT delivery models are listed in order of global prevalence; thus, “asset” and “process” models are the most common, whereas “value” models are the least common.
- Delivery models orchestrate resources around that which is being optimized, and so a key differentiator between models is what they focus on managing.
- Models are listed in order of maturation and, therefore, represent the required transformation path. An asset-optimizing organization wishing to become a service-optimizing organization, for example, should first become process-based. Models cannot easily be skipped.
- There are no value judgments implied by the framework. The fact that one model requires more maturity than another does not make it better. The framework is not meant to imply that every IT organization should ultimately achieve the value model and become a profit center. The framework only indicates the migration path required to achieve the capabilities inherent in any given model. Which model is best will be determined by the needs of the business and the IT role it most values.

CIO — Operations Management

Current State Overview

- The Department of Technology, Management and Budget (DTMB) is responsible for providing all Information Technology services to Michigan State Agencies.
  - IT was consolidated in 2002 and then consolidated within DTMB in 2010.
- The IT Organization has 1,544 employees (does not includes vacancies).
  - Approximately 400 people retired from technology in the past year, and the majority of those retirements have not been replaced.
  - The Department of Technology employs 354 contractors (includes agency services and infrastructure services).
- DTMB has an operating budget of $414M (non-interface) which has increased by 17% since 2007.
- DTMB has defined a 2010–2014 IT strategic plan that lays forth six objectives and numerous guiding principals.
- DTMB's budgeting process uses a cost-recovery policy, where every expense is billed back to agencies.
  - DTMB's baseline budgets are primarily defined through historical spending from previous years, and Agency Services costs are usually flat year-over-year because each agency has dedicated resources.
  - Internal projects are usually not managed against fixed project budgets and the budgeting process does not drive project prioritization.
- DTMB has started to establish processes and tools to monitor projects and to manage resources.
  - The annual Call For Projects is a three-year-old process that compiles and priortizes agency-specific and Infrastructure Services projects.
  - DTMB has numerous tools and software packages in place to help with budgeting and resource planning. However, many of these are not widely adopted or rigorously used (e.g., ChangePoint) and others are old and do not permit effective enterprise planning (e.g., Main).
- DTMB has two types of SLA reports that are published monthly:
  - Report on general statistics such as Enterprise Application Availability and Time to Restore Workstation
  - Report on Red Card (mission-crititcal) applications status.

CIO — Operations Management

Current State Overview

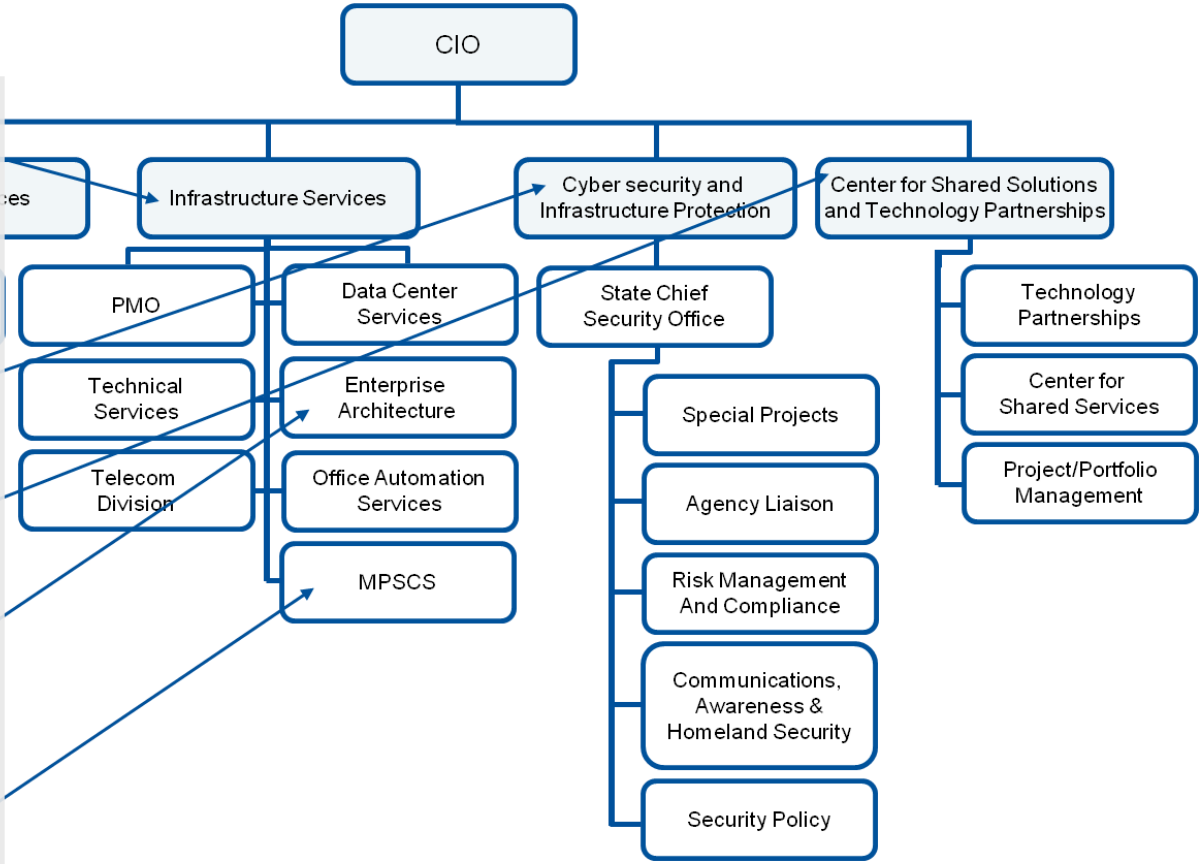
Infrastructure Services encompasses the program management office, technical services, telecommunications, data center services, enterprise architecture, office automation services, and MPSCS.

Cybersecurity and Infrastructure Protection oversees physical security for all State of Michigan facilities as well as protecting the state's computer systems and networks. DTMB actively works with State, Local and Federal Law Enforcement to maintain cyber security.

Center for Shared Solutions and Technology Partnerships leverages technology applications or systems where an entity or area delivers service to multiple internal and/or external customers. This includes end-user or service-oriented offerings; middleware components; and back-end, server, or hardware related software. **See slide 63.**

EA drives technical architecture by adopting standards and ensuring compliance across the organization.

DTMB oversees the Michigan Public Safety Communications System – which was formerly under Michigan State Police. **See slide 64.**



CIO — Operations Management

Current State Overview — Center for Shared Solutions and Technology Partnerships (CSSTP)

- CSSTP coordinates the development, maintenance and performance management of enterprise IT shared solutions and provides a conduit for cross-boundary partnerships with agencies outside of State government.
  - CSSTP operates as one unit, with a single entry point to reduce costs, provide more and better services to citizens, and make crossing government lines seamless.
  - Approximately 50 people work in CSSTP.
- Current Services include:
  - Intranet and Team Room Collaboration (SharePoint) — all State departments;
  - Query and Reporting (BusinessObjects) — DHS, DCH, DTMB, MDARD, MDOT
  - Data Transformation and Manipulation (IBM DataStage/QualityStage) — DCH, Treasury, DHS
  - GeoData Services (including base framework) — all State departments
  - Bing Maps for Enterprise — various State departments and 15 county governments
  - MiCloud Data Storage — MDOT, DTMB, DNR, DEQ.
- Strategic Objectives of CSSTP:
  - Increase communication and awareness of Shared Solutions role and portfolio.
  - Improve decision making around the creation of shared solutions.
  - Increase efficiency through establishing more shared solutions.

CIO — Operations Management

Current State Overview — Michigan Public Safety Communications System (MPSCS)

- **Goal —** The goal of the MPSCS is to be "the leading edge of public safety communications technology, leveraging the technologies of broadband, Mobile Data, Computer-Aided Dispatch, Automatic Resource Locator (ARL), and Asset Management hardware and software tools, while providing reliable interoperable communications as the foundation for community safety and security by minimizing the financial and technological barriers through interagency cooperation."
- **Customers Base and Customer Satisfaction —** MPSCS subscribers have increased from 11,000 radios at the end of construction to 58,000 radios today.
  - MPSCS works in close coordination with local government, neighboring state governments and federal agencies. Approximately 80% of users are local, with more than 1,000 different local agencies using MPSCS.
  - Based on interviews, MPSCS is widely praised for its customer service. MSP noted that MPSCS provides excellent service, but they are not adequately staffed and are not always able to service MSP vehicles often enough to keep them deployed in the field.
- **Staffing —** MPSCS staff has decreased from 110 to 72.
- **Funding —** MPSCS's annual budget is approximately $12 million, and the MPSCS budget has remained relatively unchanged for the past eight years.
  - MDOT is the only State agency to pay for MPSCS services, but it is estimated that agency subscriber fees would total approximately $3 million per year.
  - Infrastructure improvements required to service local customers are paid for by the local customer. MPSCS then gives the local customer a credit valued at 50% the cost of the infrastructure improvement to be applied toward future fees.
- **MPSCS's Outlook —** MPSCS is well positioned to become a significant part of providing future mobility solutions to DTMB customers.
  - In 2012, MPSCS will need to begin paying a $5 million maintenance fee to Motorola. It is currently unknown where these funds will come from.

CIO — Operations Management

Current State Overview — Public Safety Communications in Other States

	California	Pennsylvania	Florida	Indiana
Description	■ Several department-specific systems and supporting infrastructures. ■ Frequencies used: 800MHz, VHF low-band, VHF high-band, UHF. ■ State microwave system leveraged for interconnecting sites. ■ Data service is provided by third-party entities and is contracted out by each department.	■ PA-STARnet is an 800 MHz trunked voice and data communications system which uses the proprietary OpenSky protocol. ■ Statewide microwave backbone to support system. ■ Their system currently has a VHF overlay and is planning for a UHF overlay in the future.	■ Florida's system, SLERS (Statewide Law Enforcement Radio System) is an 800 MHz trunked voice communications system. ■ Fire is on a separate VHF system and they are looking into P25 700 MHz for aircraft. ■ FIN (Florida Interoperability Network) operates in a gateway function to promote interoperability throughout the State.	■ Project Hoosier SAFE-T is an 800 MHz trunked voice and data communications system.
Operations	■ Departments own their equipment, but it is maintained by Public Safety Communications Division (PSCD).	■ State-owned system operated by MA/COM (now Harris Corporation).	■ Public/Private partnership — MA/COM owns sites and charges for their services.	■ State owns the system, but it is operated by Motorola.
Governance	■ Responsibility for statewide strategic planning is not clearly defined. ■ Public Safety Radio State Planning Committee (PSRSPC) is responsible for State interoperability planning.	■ The Office of Public Safety Radio Services (OPRS) provides general oversight, management and administration for the design, development and operation of PA-STARNet.	■ Department of Managed Services is responsible for planning, but there is a board that has oversight and prioritization.	■ Integrated Public Safety Commission is responsible for strategic direction and maintaining the system.

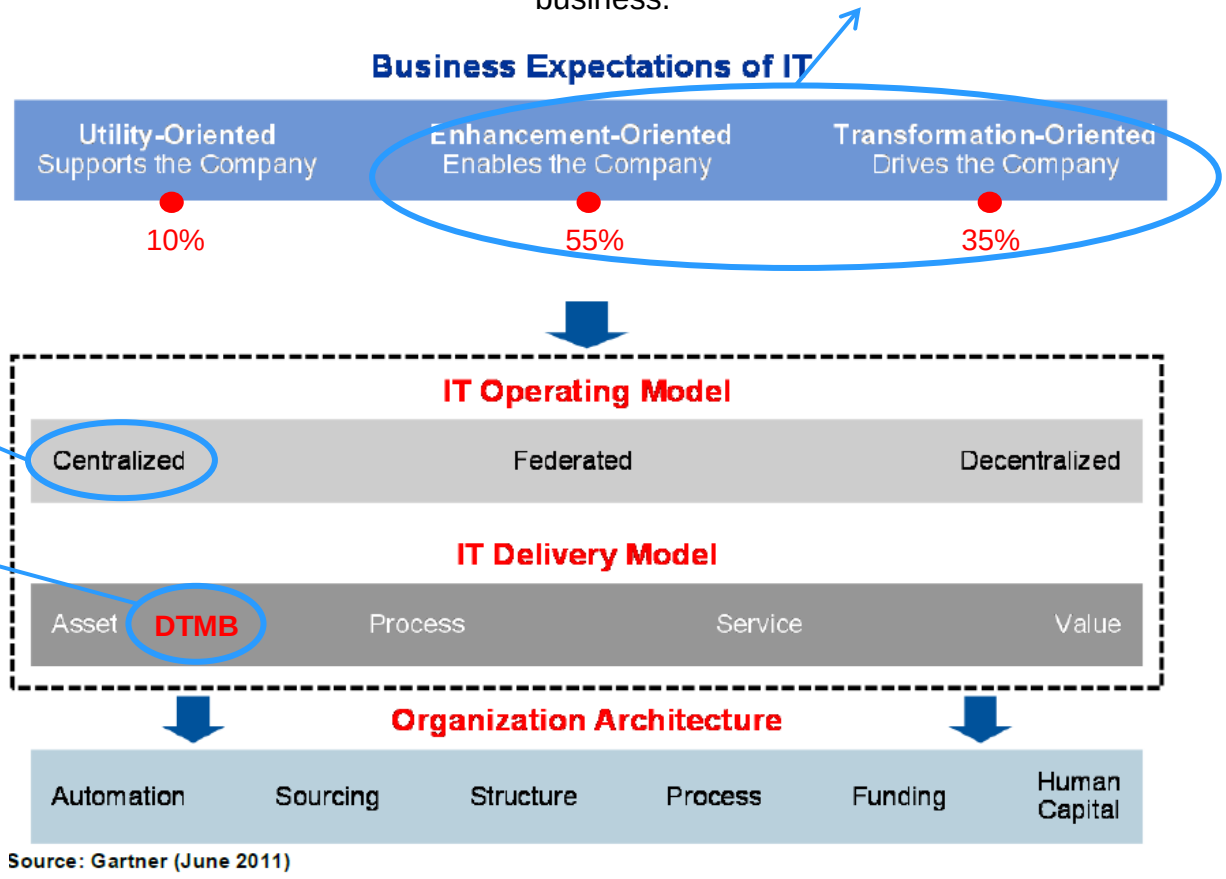
CIO — Operations Management

Current State Overview — Mapping DTMB against Gartner's Framework

A large majority of Michigan State Agencies expect DTMB to enhance or transform their business.

DTMB utilizes a centralized operating model. Although agency services are strongly aligned to the customer, they report to the Director of Agency Services, who reports to the CIO.

DTMB's Delivery Model falls somewhere between an Asset and Process-optimized delivery model.



Source: Gartner (June 2011)

CIO — Operations Management

Current State Overview — Current State Organizational Architecture

Current State = ○
Target State = ▲

Organizational Architecture for IT Delivery Models

	Asset	Process	Service	Value
Tools/Automation	Opportunistic device monitoring, help desk "ticketing" tools ○	"ERP" for IT	"CRM" for IT	IT back office "off the shelf"; significant internal development for retained competitive advantage
Organizational Structure	Functional or technical silos ○	Process/function matrix with functional silos dominating	Process/function matrix with multidisciplinary process teams dominating; some competency centers staffed as internal consultancies	IT-business matrix around core business processes or value centers
Human Capital	Technical expertise ○	Process expertise	Solution, relationship and business expertise	Business expertise and innovation expertise
Sourcing	Mostly internal; some external staff augmentation	Mostly internal, some selective outsourcing based on "commodity" services ○	Strategic multi-sourcing based on explicit competitiveness of internal capabilities	Strategic multi-sourcing based on business core competencies and strategic intent for IT

CIO — Operations Management

Current State Overview — Current State Organizational Architecture (continued)

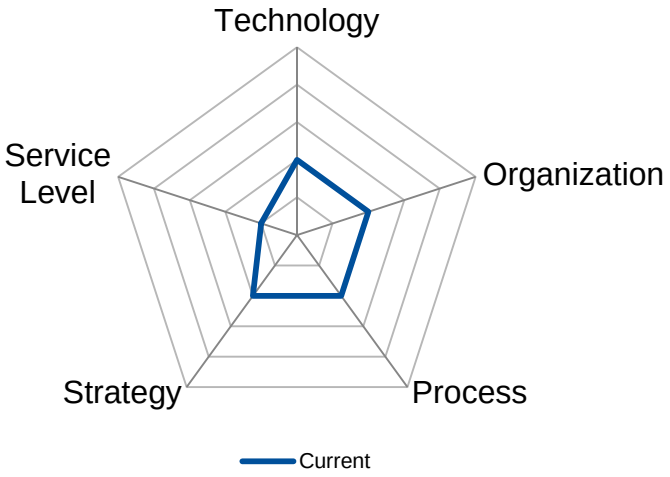
Current State = ○
Target State = ▲

	Asset	Process	Service	Value
Process Design	None	Compliance to "standard" (generally ITIL, possibly also combined with elements of CMMI, COBIT and Six Sigma) ○	Process improvements correlated to required service outcomes; outcomes measured in relation to IT service-level agreements	IT process improvements correlated to business processes; outcomes measured in business process or business outcome terms
Funding	Fixed annual IT budget; no chargeback or chargeback based on high-level allocation	Fixed annual IT budget and chargeback allocation for infrastructure; possibly zero-sum budgeting and chargeback for projects ○	Cost or market-based fee for service; zero-sum budgeting	Market-based fee for service; profit/loss-based budget with discretionary revenue stream

CIO — Operations Management

Major Findings

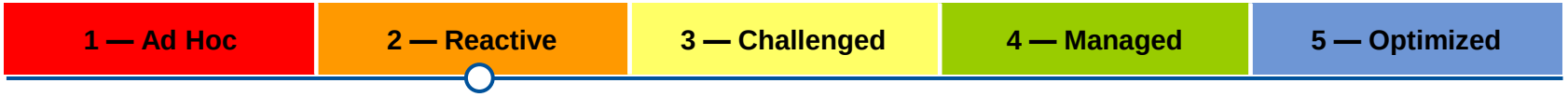
- **DTMB has developed a strategic plan with high-level goals and performance targets. Projects are included in the Call For Projects process, but project costs estimates are not documented.**
  - Bottom Line: DTMB must determine project cost estimates and determine the funding required to complete these initiatives.
- **The DTMB annual budget is not composed of specific initiatives and projects.**
  - Bottom Line: This prevents DTMB from achieving the granularity it needs for scheduling, resource allocation, and prioritization of activities. Without this information, DTMB cannot work with the agencies to prioritize resources or manage expectations, which results in customer frustration.



- **The DTMB annual budget consistently allocates costs to each agency, but client project demands fluctuate every year.**
  - Bottom Line: The dedicated agency staff and the lack of project prioritization create unrealistic customer expectations that exacerbate customer dissatisfaction.
- **Internal governance and customer-facing roles and responsibilities must be clearly defined.**
  - Bottom Line: Although some formal processes (including governance) are in place, processes need to be further developed to ensure accountability between the IO and Infrastructure Services to best serve the agencies.
- **Agency Services has aligned resources to service specific agencies, which has created redundant functions.**
  - Bottom Line: Several resources (project managers, programmers, DBAs, etc.) are solely dedicated to specific agencies, which has unevenly distributed skilled resources.

CIO — Operations Management

Current State Technology Assessment



1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited systems or tools in place to support resource tracking (e.g., personnel, assets, budget).	Some systems or tools are in place to support resource tracking (e.g., personnel, assets, budget).	Systems or tools to track resources are present; however, there is no coordination or standardization across the enterprise to support resource tracking.	Standard systems and tools to support resource tracking.	DTMB is proactive in researching various tools to support resource tracking (e.g., personnel, assets, budget).

CIO — Operations Management

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ Have basic tools in place that assist in communication and creation of artifacts to document roles, responsibilities and processes (MS Office, ChangePoint, SharePoint, Business Objects, Main).	■ Basic nature of tools will, in time, cause difficulty as DTMB matures its performance management functions. ■ Lack of technology to make operations transparent across organizations within DTMB exasperates the insular effect of the organizational silos. ■ Poor technology adoption (ChangePoint) prevents effective business analysis, operational overview and control: – Inability to view real-time resource allocation – Lack of measurement (cost, performance, etc.) prevents effective technology selection.

CIO — Operations Management

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of responsibilities for resource management across the enterprise. Common attributes include: ■ DTMB does not have enough adequately trained staff to support resource management; ■ DTMB does not have a personnel management plan or strategy to ensure that DTMB attracts and develops a sufficient number of adequately trained staff to support resource management; ■ DTMB has undefined roles and responsibilities to support resource management; ■ Functionally and technically siloed.	**IT is run like a business and ownership of client service delivery responsibilities within the enterprise exists, but the organization is immature and appropriate skill sets are not present. Common attributes include:** ■ DTMB has staff that has received some of the necessary training (but needs more training) to be adequately prepared to support resource management; ■ DTMB inconsistently applies personnel development processes and does not have a defined hiring/recruiting plan to address projected changes in the workforce (e.g., significant number of potential retirements, changing business needs, etc.) to support resource management; ■ DTMB has inconsistently established roles and responsibilities to support resource management.	**Ownership of client service delivery responsibilities within the enterprise exists, is fairly mature, and exhibits some best practices. Client service delivery skill sets largely align with IT support needs. Common attributes include:** ■ DTMB has adequately trained resources but is understaffed, which limits the organization's ability to support resource management; ■ DTMB has a personnel management plan or strategy that incorporates a defined training plan to develop adequately trained staff to support resource management; ■ DTMB does not have a defined hiring/recruiting plan to address projected changes in the workforce (e.g., significant number of potential retirements, changing business needs, etc.) to support resource management; ■ DTMB has consistent and documented roles and responsibilities to support resource management.	**Client service delivery organization is integrated with other key processes and IT roles, and is appropriately organized and staffed. Common attributes include:** ■ DTMB has a sufficient number of adequately trained resources to support resource management; ■ DTMB has a personnel management plan or strategy that incorporates a defined training plan to develop adequately trained staff to support resource management; ■ DTMB has a defined hiring/recruiting plan to address projected changes in the workforce to support resource management; ■ DTMB has documented each role as responsible, accountable, consulted and informed to support resource management.	**Client service delivery processes are mature and efficient. Common attribute, include:** ■ DTMB has a sufficient number of proficient resources to support resource management; ■ DTMB has a personnel management plan or strategy that incorporates a defined training plan to develop adequately trained staff to support resource management; ■ DTMB has a defined hiring/recruiting plan to address projected changes in the workforce (e.g., significant number of potential retirements, changing business needs, etc.) to support resource management; Job performance is evaluated, enhanced and rewarded based on defined objectives to support resource management; ■ DTMB has documented each role as responsible, accountable, consulted and informed to support resource management.

CIO — Operations Management

Current State Organization Assessment Rationale

Strengths

- Increasing economies of scale achieved as centralized Infrastructure Services provide and adhere to technology standardization.
  - Consolidated data centers from 40 to three.
- Aligned Agency Services allow the IO to be responsive to varying levels of business needs.
- Centralized model gives CIO authority to optimize organizational structure as needed.
- MPSCS is widely praised for excellent customer service.
- Shared Services reaches out across traditional State, local and federal government lines to leverage technology and make services more effective and efficient.
- DTMB's cyber-security initiative is one of the most aggressive in the nation:
  - Established a Michigan Cyber-Command Center (MCCC), Michigan Intelligence Operations Center (MIOC) and Michigan Cyber-Defense Response Team (MCDRT) to prepare, manage and deal with the variety of potential and real electronic threats to the State of Michigan
  - Pioneering partnerships with federal law enforcement.

Weaknesses

- The integration and communication between State of Michigan agencies, Agency Services and Infrastructure Services is problematic for the following reasons:
  - DTMB is organized to deliver on technology and IT goals, not business- or customer-oriented solutions and goals (see "General Observations" IT Skills Inventory)
  - DTMB is organized around functional silos that do not have end-to-end responsibility or accountability for the service supplied to the customer (see "General Observations" IT Skills Inventory and slides 40, 50)
  - IOs are held accountable, but have no authority over infrastructure services
  - Functional Silos (IOs, EPMO, SS, IS, IS-PMO, EA, SS, CISO) permit expertise, but disparate efforts (e.g., the number and age of applications requires increasingly specialized and expensive personnel)
  - Functional silos prevent sharing of resources and expertise; successes in one functional silo do not translate into victories in another
    - One example would be a technology or process achievement in one Information Officer's agency not being communicated quickly and effectively to an agency under a different Information Officer.

CIO — Operations Management

Current State Organization Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Enterprise Architecture reports to head of infrastructure services, weakening enterprisewide impact, accountability and authority. ■ DTMB currently has a Chief Technology Officer, but that role is combined with Director of Infrastructure Services. Gartner contends the CTO must exist in a stand-alone department in charge of innovation. – No specific owner or product manager for innovation and introduction of new technologies (e.g., Mobile) to DTMB's customers. ■ DTMB cannot effectively articulate its business value because there is no centralized owner or manager of a service portfolio. – Erodes customer confidence in DTMB. – DTMB is unable to compare its services to open market, denying DTMB the knowledge of its competitive advantages and disadvantages. ■ Inability to hire needed skills leads to contract hiring that is more expensive. – Hinders succession planning. – Restricts resource utilization, and planning varies from Information Officer to Information Officer.

CIO — Operations Management

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Process management disciplines are adopted. Common attributes include: ■ DTMB is not involved with customer-agency IT investment management decisions; ■ DTMB does not have documented process to support account planning and documentation of requirements.	**Client service delivery processes are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes include:** ■ DTMB is inconsistently involved with customer-agency IT investment decisions; ■ DTMB has different ad hoc processes to support resource management.	**Client service delivery processes are standardized and documented, and are consistently applied to the organization. Common attributes include:** ■ DTMB is consistently involved with customer-agency IT investment decisions — mostly in costing and conducting impact analyses; ■ DTMB has a standard, documented process to support resource management.	**Client service delivery processes are well defined and managed consistently across the enterprise. Common attributes include:** ■ DTMB is highly involved with customer-agency IT investment decisions — including business case preparation (benefits identification, costing, impact analyses, risk analyses, etc.); ■ DTMB's tools and organization are appropriately aligned to efficiently track the needs of the business during the defined processes; ■ DTMB has a standard, documented process to support resource management.	**Client service delivery processes are mature and efficient. Common attributes include:** ■ DTMB is highly involved with customer-agency IT investment decisions — including business case preparation (benefits identification, costing, impact analyses, risk analyses, etc.); ■ DTMB monitors and reports on progress of the investment (i.e., is it on budget, is it delivering the projected ROI, etc.); ■ DTMB's tools and organization are appropriately aligned to efficiently track the needs of the business during the defined processes; ■ DTMB has defined service level objectives for interactions with each customer agency; ■ DTMB has a standard, documented process to support resource management.

CIO — Operations Management

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Utilize ITIL Incident Management to track Agency application availability. ■ Day Start phone reviews major events and issues for DTMB. – Includes majority of executives responsible for delivering services to the customer. – Significant events are followed up with repeat progress reports throughout the day. ■ Some Agency Services utilize SUITE or Agile. ■ DTMB sets policy and procedure for social media activities and monitors State of Michigan social media activity. ■ DTMB does regular reviews and updates of ongoing projects.	■ Call For Projects is an annual process, but the portfolio planning aspects of that process are not built in to the day-to-day processes. ■ Various organizations within DTMB are not able to quantify the value they add to the service supply chain (all groups must act to ensure appropriate service, but little overarching prioritization). – Specialization causes too much focus on specific tasks or projects rather than an understanding of the overall impact on the business. ■ Initiatives, operations and capital investment projects are not managed to a budget. – ROI analysis that demonstrates costs and benefits of a given proposed project is not completed for each project. – Unable to quantify return on investment because enterprise-level strategic investment does not occur. ■ Performance Management metrics are not used to quantify cost, resources and timelines of various objectives and goals within DTMB. – Inability to make optimized sourcing decisions. – Inability to optimize resources, leading to project mismanagement and decreased business performance. ■ Inconsistent use of project management standard methodology in that some projects use SUITE, some use Agile and some do not use either methodology.

CIO — Operations Management

Current State Process Assessment Rationale (continued)

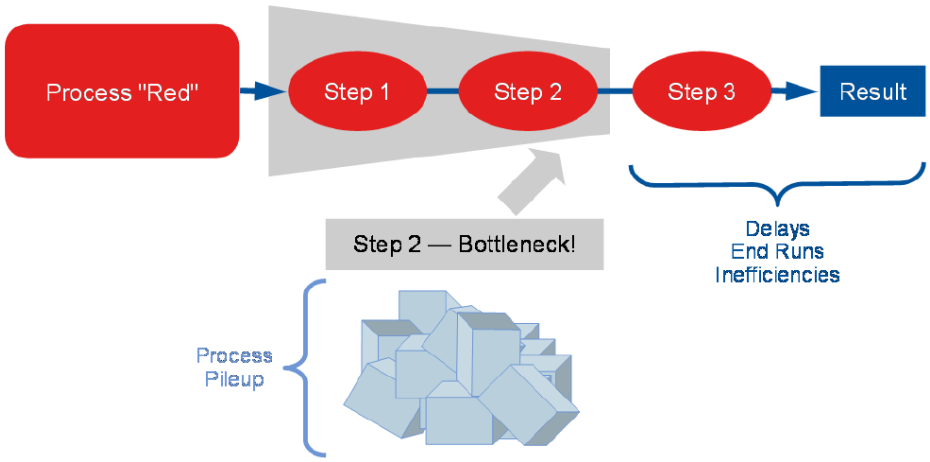
Strengths	Weaknesses (continued)
	■ Ineffective enterprise-level portfolio planning and prioritization lead to projects not starting and existing projects not finishing. – Ongoing legacy systems upgrades lead to excessive costs and business service impairment. – Smaller projects are never initiated because the majority of resources are focused on legacy systems upgrades. ■ Perceived lack of agency involvement in the definition of business requirements for IT services. – IT Skills survey reveals weakness in business analysis and requirements definition when compared to technical skills.

CIO — Operations Management

Current State Process Assessment Rationale — Process Impacts of a Siloed Organizaton

Optimizing assets means consolidation of resources around skills, functions or platforms, what we refer to today as silos.

Figure 2. Silo Dysfunction



Source: Gartner (June 2011)

- Examples of silos at DTMB:
  - The various agency services (including PMOs) personnel aligned by agency under a CSD (and IO)
  - Shared Solutions
  - Enterprise Architecture
  - Help Desk
  - Telecom
  - MPSCS
  - Finance
  - Information Security
  - Infrastructure PMO

Opportunity Costs of Silos

- Silos cause deep specialization.
- Specialization is myopic and the assets are focused on specific, repetitive tasks.
- As a given asset ages, additional resources emerge to deal with new or changing conditions, but the foundation asset is managed in the same way.
- This breeds individually optimized, expert organizations, but none has end-to-end understanding of or accountability for results.

CIO — Operations Management

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no resource management strategy or strategic planning function. Common attributes include: ■ DTMB has no enterprise strategic plan; ■ Strategic planning is not performed across the organization; ■ DTMB does not proactively monitor or respond to industry and technology trends.	**High-level resource management strategy is defined but does not have measurable objectives. Common attributes include:** ■ Each service (e.g., enterprise architecture, security, etc.) has an individual strategy, but these individual strategies do not take into account the wider organization nor are they communicated enterprisewide; ■ Strategic planning efforts do not take into account the wider organization nor are they communicated enterprisewide; ■ DTMB inconsistently monitors and responds to industry and technology trends but is not consistent across the enterprise.	**Strategy is defined and communicated; however, it is not effectively translated into consistent action. Common attributes include:** ■ Technology strategy is explicitly aligned with business goals; ■ A high-level enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ Strategic plans for DTMB are defined and communicated; however, they are not translated into action; ■ DTMB consistently monitors and opportunistically responds to industry and technology trends across the enterprise.	**Resource management strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ A detailed enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ The strategic plan includes discrete IT initiatives that are defined and prioritized into an actionable road map that supports the IT Strategy; ■ Resource management strategy is clearly defined, communicated and socialized throughout the enterprise; ■ Tools, organization and processes are aligned to oversee and ensure the execution of the strategy; ■ DTMB consistently monitors and opportunistically responds to industry and technology trends across the enterprise and inconsistently invests in innovation across the enterprise.	**Client service delivery strategy spans the business and is integrated into enterprise strategic planning, is continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ A detailed enterprise strategy that aligns with the State's overall strategy is defined and is communicated enterprisewide; ■ The strategic plan includes discrete IT initiatives that are defined and prioritized into an actionable road map that supports the IT Strategy; ■ The strategic plan has clearly defined measures for success; ■ Strategic planning is holistic, continually reviewed, and the strategy is updated to align with business objectives; ■ Strategy is clearly defined and communicated throughout the enterprise; ■ Tools, organization and processes are aligned to oversee and ensure the execution of the strategy; ■ DTMB consistently monitors and opportunistically responds to industry and technology trends across the enterprise and consistently invests in innovation across the enterprise; ■ DTMB has an established innovation center.

CIO — Operations Management

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ DTMB has a documented and goal-oriented strategic plan (ICT 2010–2014 Strategic Plan) which provides excellent business context. ■ The State has established a $2.5 million ICT Innovation Management Fund. ■ DTMB received five NASCIO awards in 2011.	■ DTMB's strategic plan has six objectives (goals) that do not have measurable objectives. ■ DTMB's strategic plan has identified projects but has not estimated costs for completing these projects. ■ There is no cohesive annual operational plan linking the various departments with defined projects, resources and prioritization all working toward a common goal. ■ No defined service portfolio that communicates services in terms of business value to the customers. ■ Activities occurring within individual IT groups focus on technology solutions (e.g., SOM Mobile Strategy) and are not linked to the overall strategy. ■ Inadequate enterprisewide strategic messaging

CIO — Operations Management

Current State Strategy Assessment Rationale — NASCIO Awards

- The State of Michigan has been awarded a number of accolades over the past several years that exhibit its commitment to executing on its strategic vision for IT.
- 2011 NASCIO Awards
  - Data, Information and Knowledge Management — Department of Human Services Decision Support System
  - Digital Government: Government to Business — USAHerds Cattle Tracking Protecting our Food Supply
  - Enterprise IT Management Initiatives — Optimizing Government Technology Value: Establishing Enterprise Metrics to Ensure Operational Readiness and Business Availability
  - Fast Track Solutions — MiCloud Automated Hosting Service
  - Information Communication Technology (ICT) Innovations — Michigan Building Intelligence System
- 2010 NASCIO Awards
  - Government Cloud Protection Program: Disaster Recovery Services Transformed for the Perfect Storm
- 2009 NASCIO Awards
  - Standard Desktop Environment
  - Secure Wireless LAN

CIO — Operations Management

Current State Strategy Assessment Rationale — Strategic Planning Process

- Gartner used the following Strategic Planning framework to assess DTMB's strategic planning process.

Business Strategy

Board Summary	■ Used to give the "elevator pitch" of the IT strategy, it typically consists of a one-or two-page PowerPoint presentation with four components: how the business will win, including capabilities needed; how IT will contribute to business success; implications for the supply side of IT; and financial implications
IT Strategy	■ The main body of this should be 15–20 pages at most—the shorter the better. This document sets the strategic direction for IT's contribution to business success, without defining the detailed plan. It should be written to survive the long-term planning horizon of the business (three-to-five years). It will be explored in detail in the rest of this report.
IT Strategic Plan	■ This is a detailed, rolling plan of the major initiatives to be executed by the IT organization in growing or transforming the business. This would normally be very detailed for the short-term planning horizon (12–18 months), with high-level vision for the medium and long-term planning horizons (three-to-five years or longer). The plan should typically include a Gantt chart showing the initiatives over time, success metrics for each phase, resources (human, financial and other) needed for each phase and an investment view of the initiatives showing the portfolio mix in terms of value, risk and size of investment.
IT Operating Plan	■ A detailed plan of the operations of the IT organization, focused on run-the-business IT for the short term, typically documenting assets of the organization and success metrics for running them. Assets normally covered are people, information, application portfolio and infrastructure.

IT Budget

CIO — Operations Management

Current State Strategy Assessment Rationale — DTMB Strategic Planning Process

Business Strategy

Both the goals in the IT Strategy and the Initiatives in the IT Strategic Plan lack specific resources, timelines and metrics for measuring success.

Board Summary

- "To be the most innovative IT organization in the world"

IT Strategy

- Access: Provide exceptional services to Michigan citizens and businesses anytime, anywhere
- Service: Deliver efficient and effective technology services and shared solutions
- Strengthen operations and security through statewide solutions and universal standards
- Workplace: Support a talented and engaged workforce
- Cross-Boundary Solutions: Accelerate partnerships across and beyond state government
- Innovation and Transformation: Drive innovation and technology to transform Michigan government

IT Strategic Plan

- Expansion of Data Sharing
- Social Networking Service
- Michigan College Access Network
- Parolee Self-Service Check-in Kiosks
- Eligibility Information Sharing
- Child Welfare System Modernization
- Unemployment Insurance Modernization
- Driver's License System Modernization
- Intelligent Transportation Systems
- Statewide Skills Alliance
- Tax Registration Modernization
- Fraud Detection
- MiCloud
- Unified Communications
- E-Discovery
- Disaster Recovery Resources
- Desktop Virtualization
- Workforce/Succession Planning
- Innovation and Performance Management Program
- Comprehensive On-Boarding Program
- DTMB Virtual University
- Employee Recognition
- Job-Shadowing Program
- Diversity Awareness
- Data Exchange with Major Utility Companies
- Data Sharing with Michigan United Way
- Health IT
- Broadband Expansion
- User-centered Design Shared-services Team

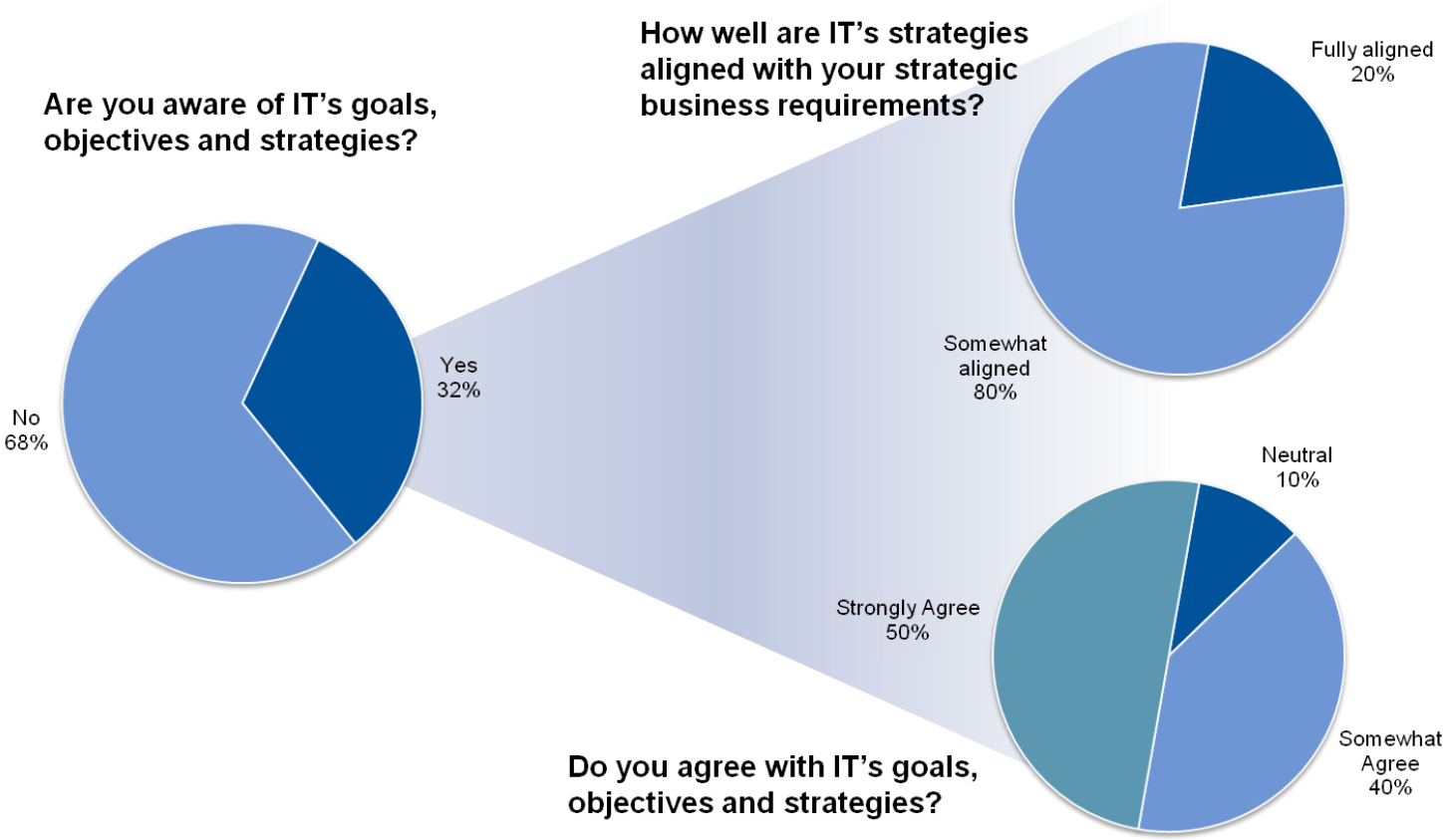
IT Operating Plan

There is no Operating Plan to execute the defined initiatives or that aligns the IT budget with the IT Strategic Plan.

IT Budget

CIO — Operations Management

Current State Strategy Assessment Rationale — ITBE Survey Results



CIO — Operations Management

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Resource management metrics are not clearly defined. Common attributes include: ■ DTMB has not identified any service level objectives tied to the objectives/needs of its executive team or the customer agencies.	**Basic resource management metrics exist, but performance is not effectively measured. Common attributes include:** ■ DTMB has informal service level objectives tied to objectives/needs of the executive team and customer agencies; ■ No objectives or metrics are defined across the enterprise.	**Resource management metrics are established, but performance is not effectively measured. Common attributes include:** ■ DTMB has defined and documented service level objectives tied to objectives/needs of the executive team and customer agencies, but performance is not measured; ■ No objectives or metrics are defined across the enterprise.	**Resource management metrics are established, and the organization is accountable to other groups within DTMB. Common attributes include:** ■ DTMB has clearly defined and documented service level objectives tied to objectives/needs of the executive team and customer agencies; ■ DTMB has formal processes in place for measuring DTMB's performance against the objectives; ■ DTMB is managing to agreed-upon service levels.	**Resource management metrics are established, and the organization is fully accountable to other groups within DTMB. Common attributes include:** ■ Integrated reporting of performance and ongoing improvement within each customer-agency and enterprisewide.

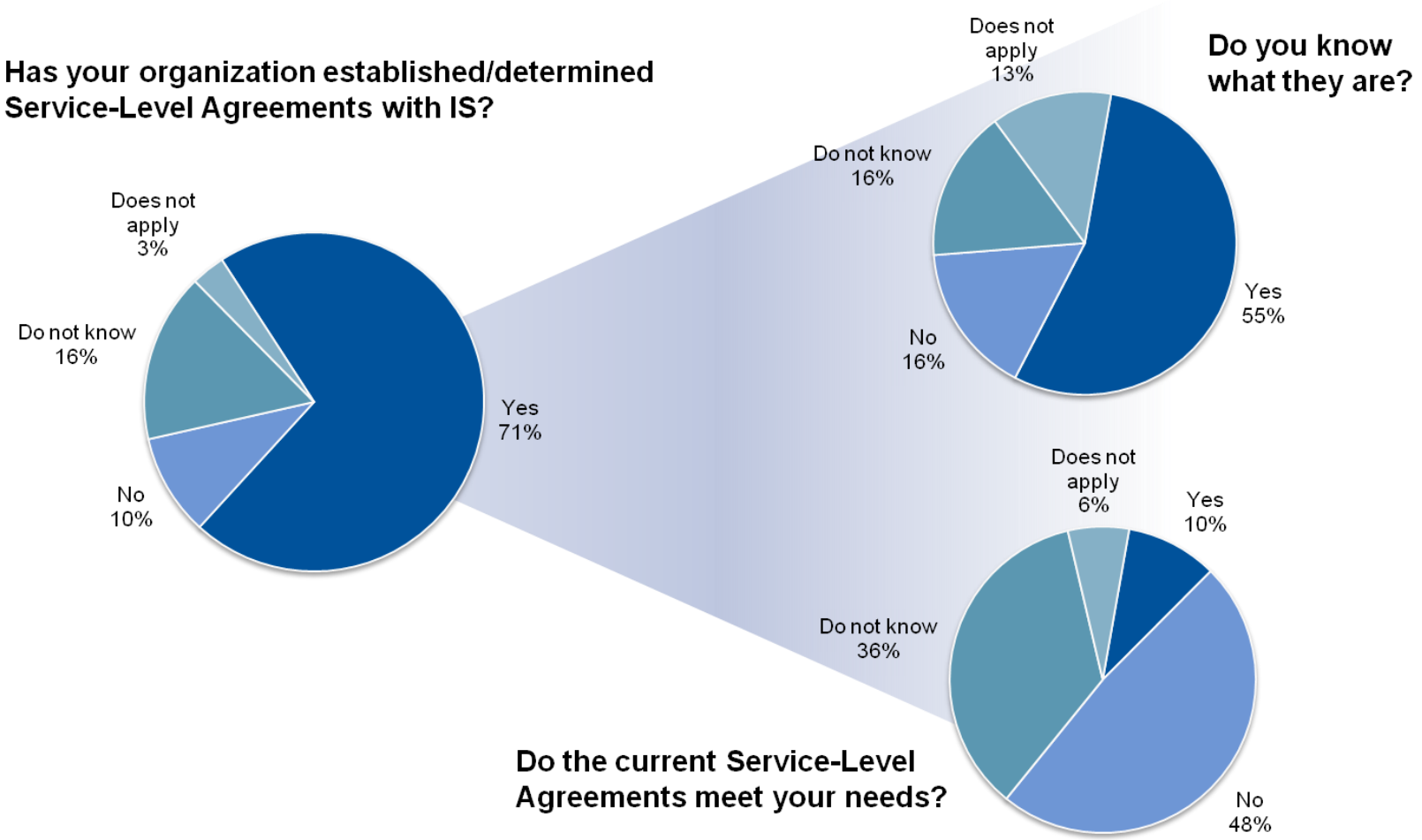
CIO — Operations Management

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ DTMB updates SLA metrics monthly and provides them to the agencies. ■ DTMB has documented service-level agreements. ■ DTMB conducts real-time monitoring of red card application status. Red card application status metrics are usually in the high 90% range.	■ SLA metrics are not linked to customer value. – 7% of customers feel that current SLAs meet their needs (see slide 85) – Inability to understand what matters to DTMB's customer – The SLA metrics that are provided to the customer are not meaningful in that there are few consequences to DTMB not meeting those SLAs.Inconsistent DTMB metrics prevent effective measurement. ■ Currently not able to report project status, how much they cost and which benefits those projects will deliver.

CIO — Operations Management

Current State Service Level Assessment Rationale — ITBE Survey Results

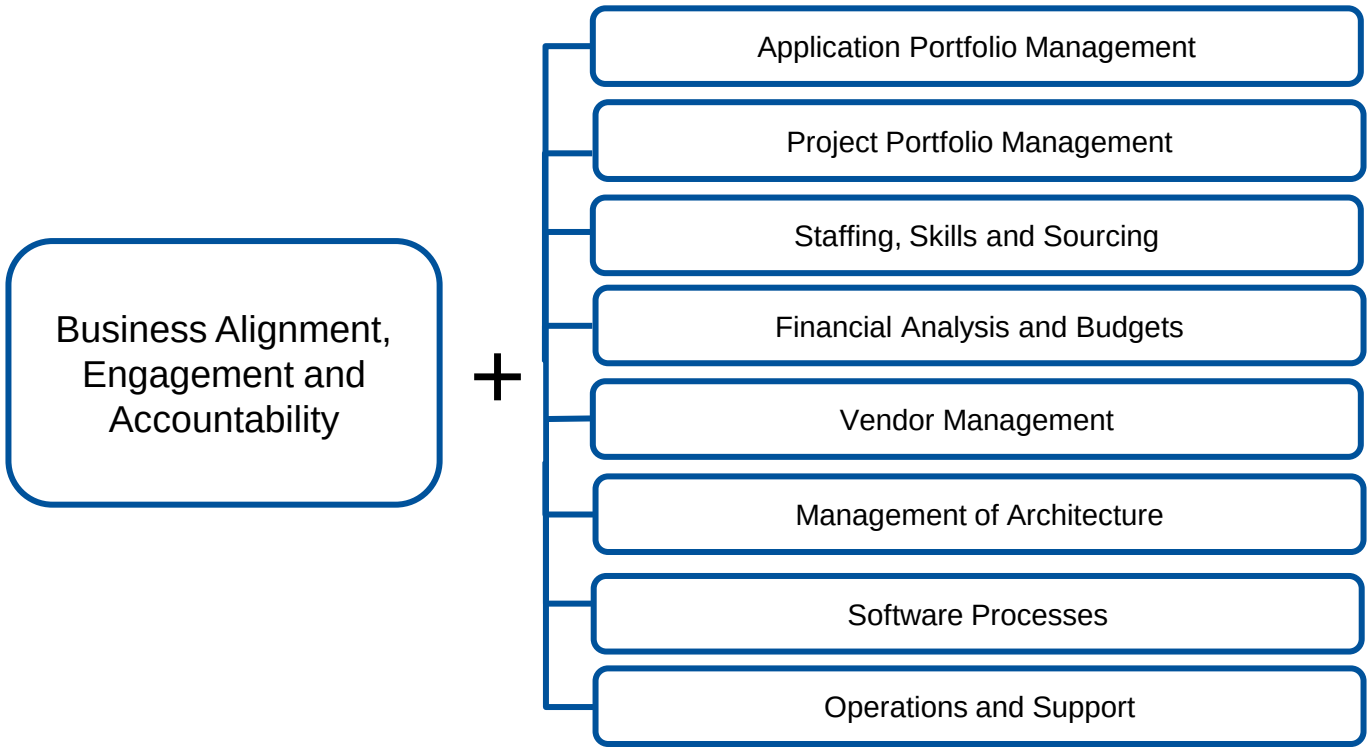


Current State Assessment and Maturity Analysis

Applications

Applications

Gartner Framework — Applications



Applications covers more than just the software development life cycle (SDLC); it involves the overall management of the application portfolio, as well as all aspects of managing application development projects and ongoing maintenance.

Applications

Current State Overview

Application Portfolio Management

- Application Portfolio Management (APM) has been in place for less than one year.
- ChangePoint is the current tool being used for APM.
- There are roughly 2,100 applications in the overall portfolio, approximately 75 of which are considered “Red Card” applications.

Project Portfolio Management

- Call for Projects prioritization driven more by Agency wants than anything else.

Management of Architecture

- Slightly more than 50 different programming language/development tools are being used across the Agency Services application teams.
- Shared Services role and purpose are unclear.

Staffing, Skills and Sourcing

- There are approximately 800 total FTEs (State staff and contractors) performing application development and maintenance currently — see the organization model on slide 90.
- Having difficulty competing with private sector for developers, and it is not easy to share developers among the teams.
- More project managers dedicated solely to project management (and not other things such as development) are needed.

Applications

Current State Overview (continued)

Financial Analysis and Budgets

- No total cost of ownership by application is being calculated today, and it would be very difficult to distribute all IT costs to individual applications.

Software Processes

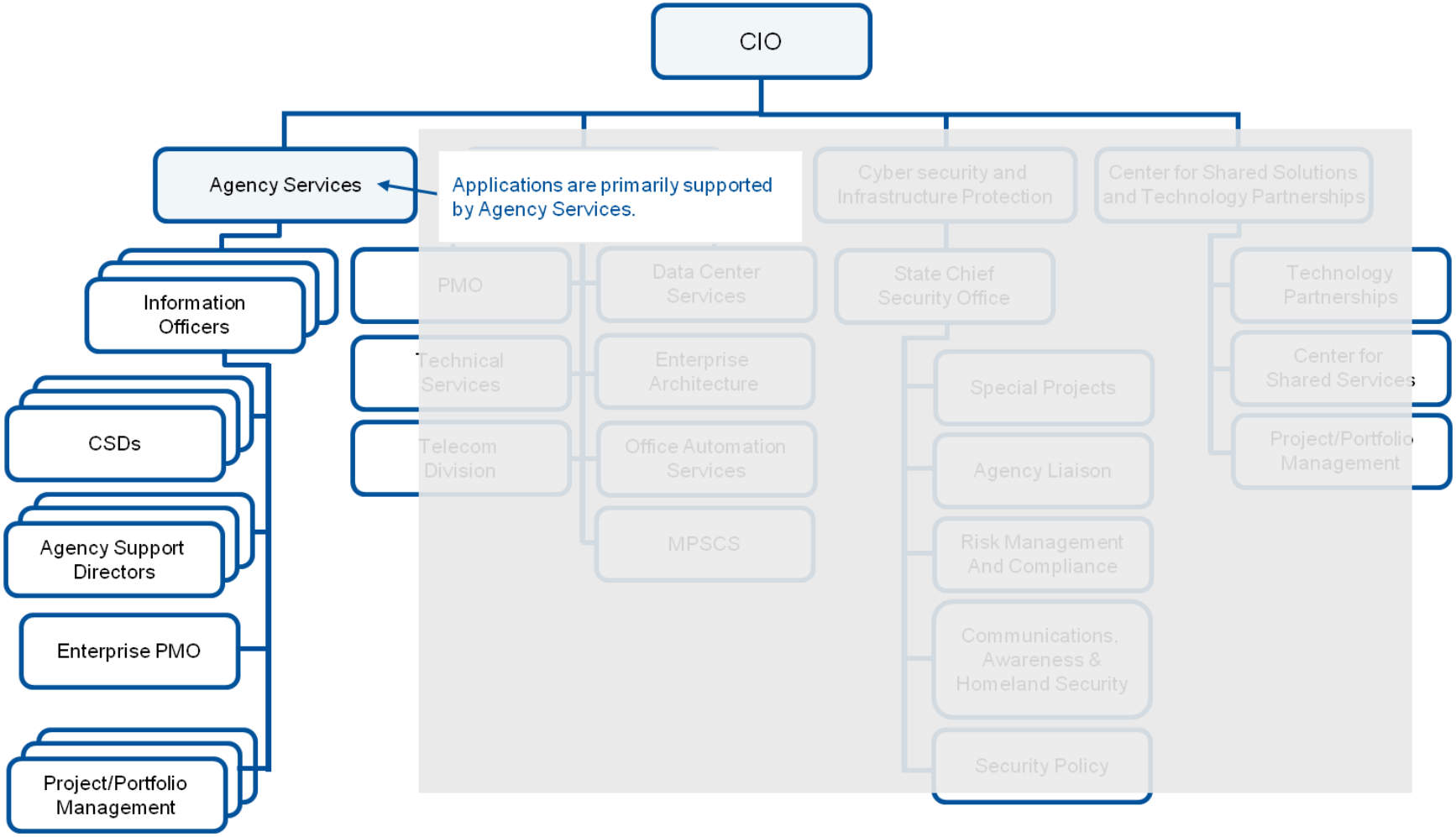
- SUITE methodology has been established, but adherence to it is mixed throughout the organization.
- Quality Assurance personnel and processes are organized/implemented differently within each of the Agency Services development teams.

Operations and Support

- No Operating Level Agreements in place today between IT groups.
- Some parts of service level reporting are useful, but not others; not all pieces are on the service level reports that need to be there.

Applications

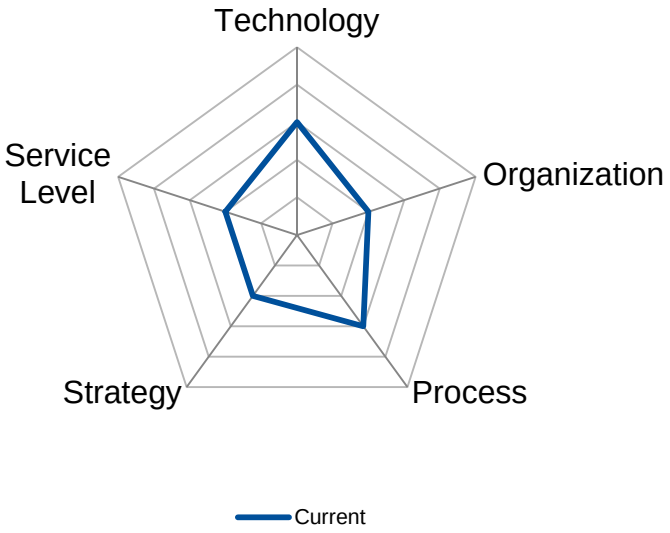
Current State Overview — Organizational Model



Applications

Major Findings

- **There are numerous programming languages and development tools in place that are not standardized across development teams.**
  - Bottom Line: Platform complexity is driving higher costs and the need for more programmers.
- **Application Portfolio Management (APM) is still in its infancy, which limits the ability to proactively retire older technology platforms.**
  - Bottom Line: The lack of APM results in reactive, tactical decisions for applications on older platforms that cannot be modified in order to avoid very difficult-to-resolve outages.
- **The SUITE methodology is robust and aligns to industry best practices, but adherence to it and associated quality standards are inconsistent.**
  - Bottom Line: Lack of development standardization is leading to variability in customer satisfaction and the ability to be on time and on budget with application projects.
- **Supporting resources for development are distributed among the various development teams.**
  - Bottom Line: The current organizational structure underneath each Information Officer is contributing to variability in development processes, policies and procedures across the agencies.



Applications

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No tools are implemented in the following areas: ■ Application planning ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Production turnover	**Tools are inconsistently implemented for each agency in some of the following areas:** ■ Application planning ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Production turnover	**Tools are inconsistently implemented for all agencies in all of the following areas:** ■ Application planning ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Production turnover	**A standard set of tools is consistently implemented for all agencies in all of the following areas:** ■ Application planning ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Production turnover	**A standard set of tools is consistently implemented for all agencies in all of the following areas and DTMB continually looks to improve this toolset:** ■ Application planning ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Production turnover

Applications

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ Utilizing many industry-standard tools for code development, code versioning, documentation and testing on newer platforms, such as Rational and Mercury. ■ Newer development is occurring on Microsoft .NET and Java-based platforms. ■ Usage of ChangePoint tool is a good start toward performing application portfolio management.	■ There are many more programming languages and support/testing tools in place than the benchmarking average. ■ Each agency team is using its own set of “standard” tools for code development, code versioning, documentation and testing. ■ Several critical applications in some agencies are using very old technology platforms. ■ Incomplete attribute data set on applications within ChangePoint will limit the ability to use it as a true application portfolio management tool.

Applications

Current State Technology Assessment Rationale — DBMSs, Operating Systems, Languages

Database Technology
Name (List all the DBMS in use)
SQL Server
FILEMAKER
ACCESS
ORACLE
Flat Files
Teradata
FoxPro
DB2
IDMS
IMS
UNISYS DMSII
POSTGRES
BLLIB
Indexed files (keyed I/O files)

Operating Systems
Name (List all operating systems in use)
Windows XP
Windows Server 2003
Windows Server 2008
MCP
Unix - Sun Solaris
Windows 7
Windows Server 2008 R2
Teradata
Unix - HP
Unix - Linux
Windows NT
Linux-SUSE
Linux--Red Hat
BL/SOURCE, CANDE, BL/SCHED, BL/LIB
Novell

Programming Languages
Name (List all Languages in use)
C#.Net
SQL
ASP.NET
FileMaker Scripts
Crystal Reports Scripts
Siebel
Visual Basic
Microfocus for COBOL
Cognos
Access
Active Reports
ASP
ASP.NET
Business Objects
COBOL
COM+
Crystal Reports
DTS
Foxpro
HTML
Java
Java Script
Microsoft IIS
MS SQL Server
Oracle
Oracle Forms
Oracle SQL
PL SQL

Programming Languages
Name (List all Languages in use)
Rbase
Script Unix
Unix Commands
unix shell scripts
VB Script
VB.NET
Visual Basic
XML
XSLT
PHP
PERL
Cold Fusion
SAS
Jquery
SSIS
AS{/MET
ALGOL
DMALGOL
C++
Xgen
Python
CSS
Jquery(JS)
DELPHI
DOS
ABAP
PEOPLECODE

Applications

Current State Technology Assessment Rationale — Support/Testing Tools

Support / Testing Tools
Name (List all the Tools in use)
Abendaid
Active PDF Generator
Adobe - Creative Suit, DreamWeaver, Flash Player, Flex, Flex
Adobe InDesign
Adobe Reader
Adobe Web Premium CS5.5
Ant
ANT
App/Server/Netw ork Vantage
ArcGis 9.3.1
ASG Zeke for batch job scheduling
BIRT
BL Sched
BL Source
BLLib
BLSched
BLSource
BNC Remedy
BSITax Factory, WebSphere, Crystal RAS, IIS, Microfocus C
Business Objects
Cande
Cisco VPN Client
Clarity
Clear Case
Clear Quest
CompuWare performance monitoring tool
Compuw are Vantage
Coms

Support / Testing Tools
Name (List all the Tools in use)
CORE - MultiBridge Administrator
Coremetrics Analytics
CPI - OpenFox, Operator 8
Crystal Reports
CTC Bridge 32
CVS
Cynergy - Application Enterprise Framew ork
Data Dynamics Active Reports
Data Services - Address Cleansing
DBA Tools by Stew art Data Tech
DM Query
DreamWeaver
Eclipse
Ektron eWebEditPro
Embarcadero - DB Artisan
Empirix
ERGO
Erw in Data Modeler
Fileaid
FileNet
Filezilla
Genesys CC Pulse reporting
Genesys Data Modeling Assistant
Genesys Interaction Routing Designer
Genesys Studio (Java)
GNU
GOOGLE CHROME JAVA SCRIPT CONSOLE
Hibernate

Support / Testing Tools
Name (List all the Tools in use)
Hisoftw are - Compliance Sherriff
HP Mercury
HP Quality Center
Hyperion Reporting
IBM 31-BIT SDK FOR Z/OS, JAVA 2 TECHNOLOGY EDITION V
IBM DEBUG TOOL FOR Z/OS
IBM FAULT ANALYZER FOR Z/OS
Information Builders - WebFocus, Developer Studio, Active R
Infragistics 2006
Insyte
IRR-Name Search
JasperReports Library
Jaspersoft
Jave Studio
JAWS Screen Reader
JBOSS
Jdevelopers
Know ledge Xpert
Law son Business Intelligence
Law son System Foundation, Law son Portal, Law son Busine
LoadRunner
log4net
Microfocus for COBOL
MS SQL server business Intelligence
MS SQL Server Management studio
MyEclipse
nHibernate
NICE

Applications

Current State Technology Assessment Rationale — Support/Testing Tools (continued)

Support / Testing Tools
Name (List all the Tools in use)
Novell - IDM3, Access Manager
OEM Oracle Enterprise Manager
Oledb
Opalis
OpCon
OPUS
Oracle Developer Suite
Oracle Forms-Report-Designer and Repository
PerForce
Process Flow Designer, Process Flow Administrator, Proces
Programmer's Workbench
PUTTY
QA Run/Load
Query Managment Facility
Quest Tools - SQL Navigator
Quest Tools - TOAD for Oracle
RAD - Rational Application Developer
Rapid Application Development v8.0
Rational Softw are Modeler
Remote Desktop
RQM
RSA - Rational Softw are Architect
Rsync
SAP
SAS Enterprise BiServer
Security Administrator, Crystal Reports
Serena - ChangeMan
Serena - InfoMan

Support / Testing Tools
Name (List all the Tools in use)
Serina PVCs
SharePoint
Siebel Tools
SMC-Remote Desktop
Snagit
SOFT ARTISIANS FILEUPEE
Spring
SQL Developer
SSH Client
Subversion
Sybase-EAServer
Sybase-Pow erBuilder Foundation Class
Sybase-Pow erDesigner
Team Track
Telerik
Tidal
Tivoli Directory Server, Bouncy Castle, Process Flow Connec
TOAD
Tomcat
Tortoise SVN
Tortose SVN
Unistar
URSA (Admin)
View now - TCPIP softw are
Vignette Content Management Tools V6
Visual Source Safe
Visual Studio 2003- 2008
Webshpere Data Interchange for z/OS
WebSphere Studio
WINDBG
WinSCP
WINSPC3
WinSQL
WIRESHARK
Xpeditor

Support / Testing Tools
Name (List all the Tools in use)
Tracker
Dimensions CM
Dimensions RM
Serena Business Manager (SBM)

Applications

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB does not have defined roles/responsibilities or enough adequately trained staff for the following activities: ■ Application planning ■ Application analysis ■ Application design ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Product turnover	**DTMB has inconsistently established roles and responsibilities for the following activities:** **DTMB has staff that has received some of the necessary training (but needs more training) to be adequately prepared for the following activities:** ■ Application planning ■ Application analysis ■ Application design ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Product turnover	**DTMB has consistently documented roles and responsibilities for the following activities:** **DTMB has adequately trained resources to manage resources but is understaffed, which limits their ability to perform the following activities:** ■ Application planning ■ Application analysis ■ Application design ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Product turnover	**DTMB has documented each role as responsible, accountable, consulted and informed for the following activities:** **DTMB has a sufficient number of adequately trained staff for the following activities:** ■ Application planning ■ Application analysis ■ Application design ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Product turnover	**DTMB has a defined sourcing strategy that evaluates the optimal distribution of insourced and outsourced resources; DTMB has optimized the number of adequately trained staff to manage resources across the enterprise; This includes the identification of resources that should be pooled and shared across the enterprise;** **DTMB has documented each role as responsible, accountable, consulted and informed for the following activities:** ■ Application planning ■ Application analysis ■ Application design ■ Application portfolio management ■ Business process architecture ■ Data modeling ■ Database design ■ Software engineering ■ Change management ■ Configuration management ■ Release management ■ Testing ■ Quality assurance ■ Product turnover

Applications

Current State Organization Assessment Rationale

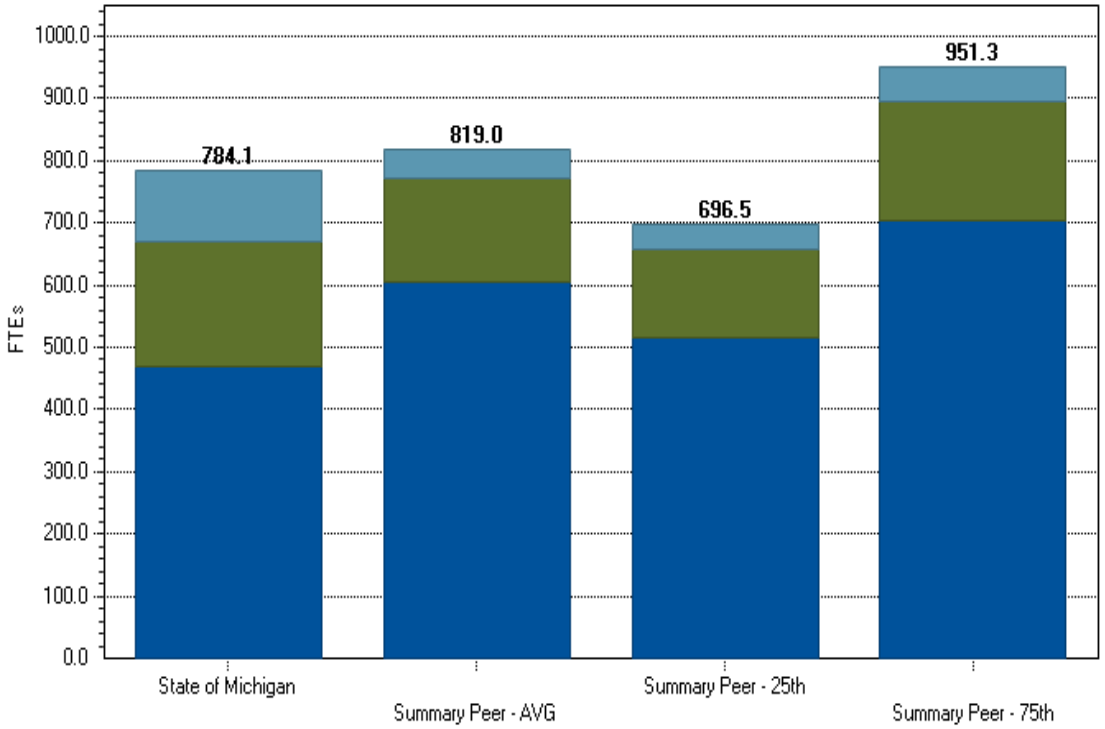
Strengths	Weaknesses
■ Several agency teams have developed a strong working relationship with the business analyst teams that have been set up within their partner agencies. ■ Although the process is not optimal, agency teams have been able to augment their staff with contractor resources to fill in vacancies. ■ Application support teams are able to provide very good “firefighting” support on short notice. ■ Application Development and Quality Assurance are two of the stronger job families from the Skills Inventory.	■ DTMB is currently more reliant (41%) on contractors than the peer average (26%). ■ Contract resources are much more expensive than State resources, which is being masked by the relative inexpensiveness of State personnel. ■ Currently experiencing significant difficulty competing with the private sector for developer and project manager people needed to execute consistently across agency teams. ■ Responsibility for providing business analysis resources is inconsistently split between the customer agencies and DTMB. ■ Software infrastructure teams split up across agency teams, leading to inconsistent tools and processes. ■ Inconsistent quality assurance team structure and roles and responsibilities across application teams. ■ SUITE project management and SDLC methodology team currently have few dedicated resources. ■ Release Management is one of the weaker job families.

Applications

Current State Organization Assessment Rationale — Benchmark: FTE by Source

- State of Michigan's staff size at 787.1 FTEs is 3% less than the peer 25th percentile.
- With fixed-price outsourced costs, staff size increases by 42.1 FTEs and is 14% higher than the peer 75th percentile and 20% higher than the peer average.
- State of Michigan supplemental workforce represents 41%, compared with the peer at 26% (319.1FTEs compared with 248.3 FTEs for the peer).

FTE by Source



	State of Michigan	Summary Peer - AVG	Summary Peer - 25th	Summary Peer - 75th
Insourced	468.6	604.8	514.0	702.5
Contractor	202.7	167.2	142.7	194.1
Outsourced	112.8	47.0	39.8	54.7

Applications

Current State Organization Assessment Rationale — Benchmark: FTE by Job Category

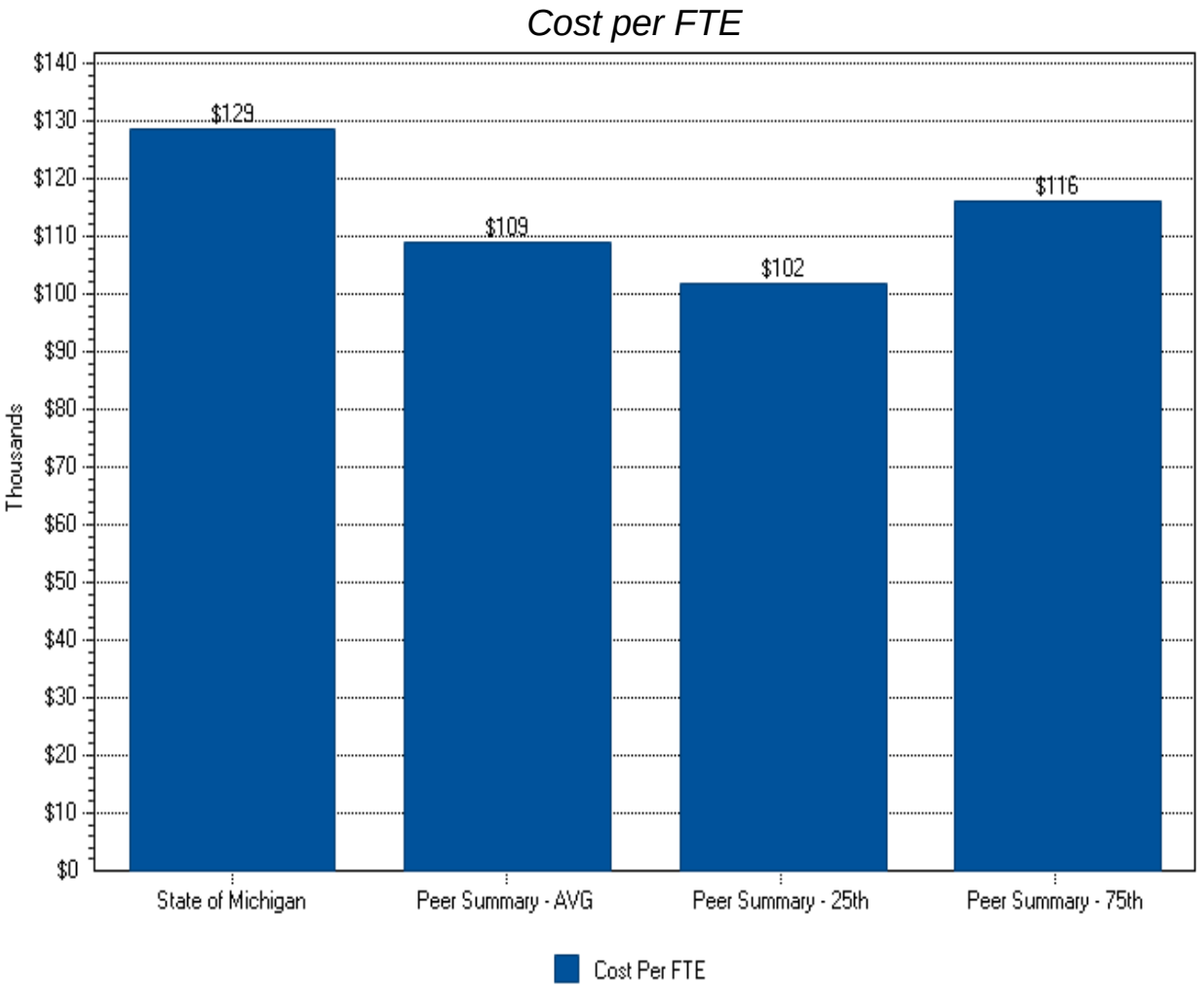
- State of Michigan developer FTEs at 542.2 indicates a high number compared with the peer average. There is a variance of 9% higher compared with the peer average.
- State of Michigan is utilizing significantly more Quality Assurance resources, which would indicate the need for a centralized Quality Assurance Function.
- There are significantly less Business Analysts than in peer organizations— 64% less than the peer average. Business Analysts for the peer group reside in IT and in the State Agencies.
- Project Management resources are less than the peer average and the peer 25th percentile, while Management resources are in range of the peer 75th percentile.
- Management resources at 81.4 FTEs is high compared to the 75th percentile.
- Services Administration indicates the widest variance when compared with the peer organizations.

Job Category	SOM 11	Peer AVG	Peer 25th	Peer 75th	Variance to Peer Average	SOM 11 Percentage	Peer Average Percentage
Developers, DBA and Infrastructure	542.2	496.5	423.7	577.8	9.20%	69.15%	60.62%
Quality Assurance	43.2	30.4	25.7	35.2	42.11%	5.51%	3.71%
Business Analyst	46.1	112.1	95.1	130.1	-58.88%	5.88%	13.69%
Project Management	40.5	44.8	37.5	61	-9.60%	5.17%	5.47%
Management and Administration	81.4	62.6	53	72	30.03%	10.38%	7.64%
Services Adminstration	21	72.6	61.5	75.2	-71.07%	216.49%	8.86%
Unallocated	9.7	0	0	0		1.24%	0.00%
Total	784.1	819	696.5	951.3	-4.26%	313.82%	100.00%

Applications

Current State Organization Assessment Rationale — Benchmark: Total Cost Per FTE

- State of Michigan's cost per FTE at $129 is 18% higher than the peer group average, primarily driven by high contractor costs.
- State of Michigan non-ERP yearly contractor rates at $164K are 21% higher compared with the peer average of $136K.
- State of Michigan yearly contractor/outsourced rates for ERP SAP, ORACLE and Siebel are extremely high at $384K, $187K and $293K compared with the peer average of $185K, $145K and $190K, respectively.



Applications

Current State Organization Assessment Rationale — Capabilities by Application Development Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Application Development	48	78	163	289	44%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of FTEs with Adv/Master Proficieny)	*% Adv/Mst*
Development Tools	53.6%
Implementation (In Relevant Programming Language)	48.1%
Middleware Management (EAI, BPM, Application Servers)	7.6%
Quality Assurance (Software and Architecture Review)	20.1%
Service Oriented Architecture (SOA)	4.5%
Software Support and Maintenance	51.9%
Solution Architecture	12.1%
System Development Methodology	26.3%
Technical Specifications Development	28.4%
Testing	46.0%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Adaptability	7.6%	32.5%	59.9%
Analytical Thinking	9.0%	30.8%	60.2%
Contributing to Team Success	12.1%	24.6%	63.3%
Customer Focused	10.0%	28.0%	61.9%
Quality Orientation	19.0%	34.3%	46.7%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	43
Qualified	122
HQ+Q	165

Applications

Current State Organization Assessment Rationale — Capabilities by Business Analysis Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Business Analysis	3	13	37	53	**30%**

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Business Analysis	**50.9%**
Business Formal Presentations	**18.9%**
Business Processes	**32.1%**
Business Requirements Definition	**41.5%**
Business Strategic Planning	**5.7%**
Cost Benefit Analysis	**3.8%**
Enterprise Products/Services	**5.7%**
Interviewing	**9.4%**
IT Trends & Directions	**3.8%**
Quality Assurance (User Testing)	**37.7%**

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Adaptability	9.4%	30.2%	**60.4%**
Building Partnerships	17.0%	39.6%	**43.4%**
Communications	11.3%	28.3%	**60.4%**
Contributing to Team Success	7.5%	26.4%	**66.0%**
Information Seeking	24.5%	30.2%	**45.3%**

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	37
Qualified	123
HQ+Q	160

Applications

Current State Organization Assessment Rationale — Capabilities by Project Management Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Project Management	12	16	80	108	26%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Lead Long Projects (12+ Months)	40.7%
Lead Medium Projects (3-12 Months)	43.5%
Lead Short Projects (1-3 Months)	53.7%
Project Estimating	27.8%
Project Management Institute (PMI)	22.2%
Project Management Tools	30.6%
Project Scheduling	39.8%
Project Scope Management	40.7%
Project Tracking and Reporting	46.3%
Risk Management	29.6%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Building Partnerships	19.4%	46.3%	34.3%
Communications	8.3%	50.0%	41.7%
Information Seeking	29.6%	43.5%	26.9%
Initiating Action	13.9%	47.2%	38.9%
Quality Orientation	23.1%	46.3%	30.6%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	25
Qualified	87
HQ+Q	112

Applications

Current State Organization Assessment Rationale — Capabilities by Quality Assurance Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Quality Assurance	7	4	10	21	52%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Acceptance Testing	57.1%
Integration Testing	38.1%
Quality Assurance Concepts and Standards	47.6%
Regression Testing	52.4%
Systems Testing	52.4%
Test Case Decision	52.4%
Test Performance/Metrics	23.8%
Test Planning	57.1%
Testing Methodologies	28.6%
Testing Tools	38.1%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	4.8%	42.9%	52.4%
Communications	4.8%	33.3%	61.9%
Contributing to Team Success	4.8%	23.8%	71.4%
Planning and Organizing Work	14.3%	28.6%	57.1%
Quality Orientation	4.8%	19.0%	76.2%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	49
Qualified	93
HQ+Q	142

Applications

Current State Organization Assessment Rationale — Capabilities by Release Management Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Release Management	1	1	8	10	20%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Change Control	60.0%
Configuration Management/Code Management Systems (Enc	70.0%
Document Management	40.0%
Governance	30.0%
IT Architecture	10.0%
ITIL Foundation Certification	0.0%
Performance Measurement and Tuning	10.0%
Project Management	0.0%
Quality Assurance Concepts and Standards	20.0%
Relevant Program Languages and Program Scripts (SQL, HTML	20.0%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	20.0%	50.0%	30.0%
Communications	30.0%	20.0%	50.0%
Decision Making	20.0%	60.0%	20.0%
Information Seeking	30.0%	50.0%	20.0%
Quality Orientation	30.0%	40.0%	30.0%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	23
Qualified	79
HQ+Q	102

Applications

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Processes and standards are not clearly defined and documented for the following activities: ■ SDLC methodology ■ Application portfolio management ■ Application support ■ Business process architecture ■ Data modeling ■ Database design ■ Master data management ■ Change management ■ Configuration management ■ Release management ■ Quality assurance ■ Testing ■ Production turnover	**DTMB has different processes and standards for some of the following activities:** ■ SDLC methodology ■ Application portfolio management ■ Application support ■ Business process architecture ■ Data modeling ■ Database design ■ Master data management ■ Change management ■ Configuration management ■ Release management ■ Quality assurance ■ Testing ■ Production turnover	**DTMB has processes and standards for all of the following activities, but they are not consistent across the enterprise:** ■ SDLC methodology ■ Application portfolio management ■ Application support ■ Business process architecture ■ Data modeling ■ Database design ■ Master data management ■ Change management ■ Configuration management ■ Release management ■ Quality assurance ■ Testing ■ Production turnover	**DTMB has consistently defined and documented processes and standards for the following activities:** ■ SDLC methodology ■ Application portfolio management ■ Application support ■ Business process architecture ■ Data modeling ■ Database design ■ Master data management ■ Change management ■ Configuration management ■ Release management ■ Quality assurance ■ Testing ■ Production turnover	**DTMB has a defined process to ensure that processes and standards are followed; DTMB has consistently defined and documented processes and standards for the following activities: DTMB has a systematic approach defined to evaluate, refine and improve the following activities:** ■ SDLC methodology ■ Application portfolio management ■ Application support ■ Business process architecture ■ Data modeling ■ Database design ■ Master data management ■ Change management ■ Configuration management ■ Release management ■ Quality assurance ■ Testing ■ Production turnover

Applications

Current State Process Assessment Rationale

Strengths	Weaknesses
■ SUITE project management and SDLC methodology have been established. ■ Some individual agency teams have strong internal controls for managing projects and application development.	■ SUITE methodology is not followed consistently across all agency project teams, and solution architecture activities are not being performed frequently during initial project proposal. ■ Currently, quality assurance processes do not proactively ensure that all deliverables meet a certain quality standard as those deliverables are being created. ■ Currently only able to perform enterprise-level quality assurance reviews after-the-fact with PPQA team. ■ Costs are generally only tracked for contractor resources — not internal resources. ■ Some Agile development in place, but is not extensive, and PM methodology is playing catch-up. ■ There is no formally approved, established service catalog for application development work.

Applications

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined Applications strategic plan. Common attributes include: ■ Limited agency engagement for application budget creation; ■ No management insight into application performance; ■ No application portfolio management; ■ Limited agency accountability for application investments or budget.	**High-level applications strategy is defined, but does not have measurable objectives. Common attributes include:** ■ Some agencies are engaged for application budget creation; ■ Ad hoc management insight into application performance; ■ Ad hoc application portfolio management; ■ Inconsistent agency accountability for application investments or budget.	**Applications strategy is defined and communicated; however, it is not effectively translated into consistent action. Common attributes include:** ■ All agencies are inconsistently engaged for application budget creation; ■ Management has insight into application performance for all agencies; ■ Application portfolio management is performed for all agencies; ■ Agency accountability for application investments or budget is tracked by the agencies.	**Applications strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ All agencies are consistently engaged for application budget creation; ■ Management has insight into application performance for all agencies; ■ Application portfolio management is performed for all agencies; ■ Agency accountability for application investments or budget is tracked at DTMB.	**Applications strategy spans the business and is integrated into enterprise strategic planning, is continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ All agencies are consistently engaged for application budget creation; ■ DTMB proactively works with agencies to identify and secure funding sources; ■ Management has insight into application performance for all agencies, and actively identifies applications to sunset; ■ Application portfolio management is performed for all agencies, and defined processes are in place to evaluate the possibility of sharing applications across agencies; ■ Agency accountability for application investments or budget is tracked at DTMB.

Applications

Current State Strategy Assessment Rationale

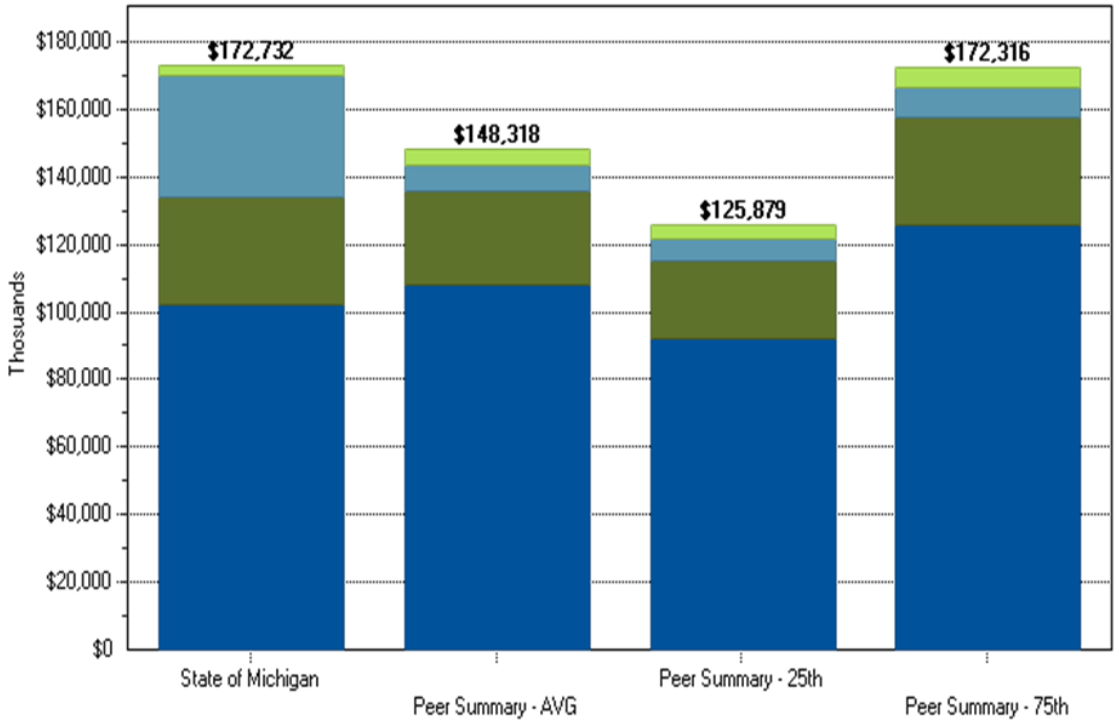
Strengths	Weaknesses
■ Some Information Officers are providing strategic-level support to their partner agencies. ■ There is an overall Agency Services section in the existing IT Strategic Plan.	■ Total application support spend is at the 75th percentile. ■ Overall, high costs being driven by very high software costs and very high hosting and outsourcing costs. ■ Some Information Officers are only able to provide operational support. ■ Many agency teams are focused more on “firefighting” and current operations, since “optional” projects are falling “below the line” in the Call for Projects process. ■ Individual agency teams did not appear to be referencing the IT Strategic Plan to ensure alignment with it, except for individual application projects.

Application Support

Total Spending by Cost Category

- Personnel cost is 6% less than the peer average ($6.3M) for applications sustainment.
- Facility cost is less than the peer organizations, as there are fewer IT resources.
- Software costs are significantly higher than the peer average and align more with the peer 75th percentile.
- Hosting and Outsourced (Fixed Price) are significantly higher than the peer organizations.

Spend by Cost Category



	State of Michigan	Peer Summary - AVG	Peer Summary - 25th	Peer Summary - 75th
Personnel	$101,842	$108,182	$92,053	$125,664
Software	$32,350	$27,467	$23,019	$31,947
Hosting & Outsourced	$35,525	$7,735	$6,618	$8,974
Occupancy	$3,015	$4,934	$4,189	$5,731

Applications

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Application service levels not clearly defined or negotiated with the customer. Common attributes include: ■ Application development service levels are not defined at the beginning of each project; ■ Application support service levels (e.g., uptime, availability, time to restore, etc.) are not defined.	**Basic Application service levels exist, but performance is not effectively measured. Common attributes include:** ■ Application development service levels are sometimes defined at the beginning of each project; ■ Application support service levels (e.g., uptime, availability, time to restore, etc.) are ad hoc.	**Application service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Application development service levels are always defined at the beginning of each project, but are inconsistently tracked during the project; ■ Application support service levels (e.g., uptime, availability, time to restore, etc.) are consistently defined across the enterprise but inconsistently tracked.	**Application service-level agreements and metrics are established and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Application development service levels are always defined at the beginning of each project, and are consistently tracked during the project; ■ Application support service levels (e.g., uptime, availability, time to restore, etc.) are consistently defined across the enterprise and are consistently tracked/reported against.	**Application service-level agreements and metrics are collaboratively and regularly agreed to with customers, and the organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Application development service levels are always defined at the beginning of each project, and are consistently tracked during the project; ■ Application support service levels (e.g., uptime, availability, time to restore, etc.) are consistently defined across the enterprise and are consistently tracked/reported against; ■ Organizational performance is evaluated, enhanced and rewarded based on defined objectives.

Applications

Current State Service Level Assessment

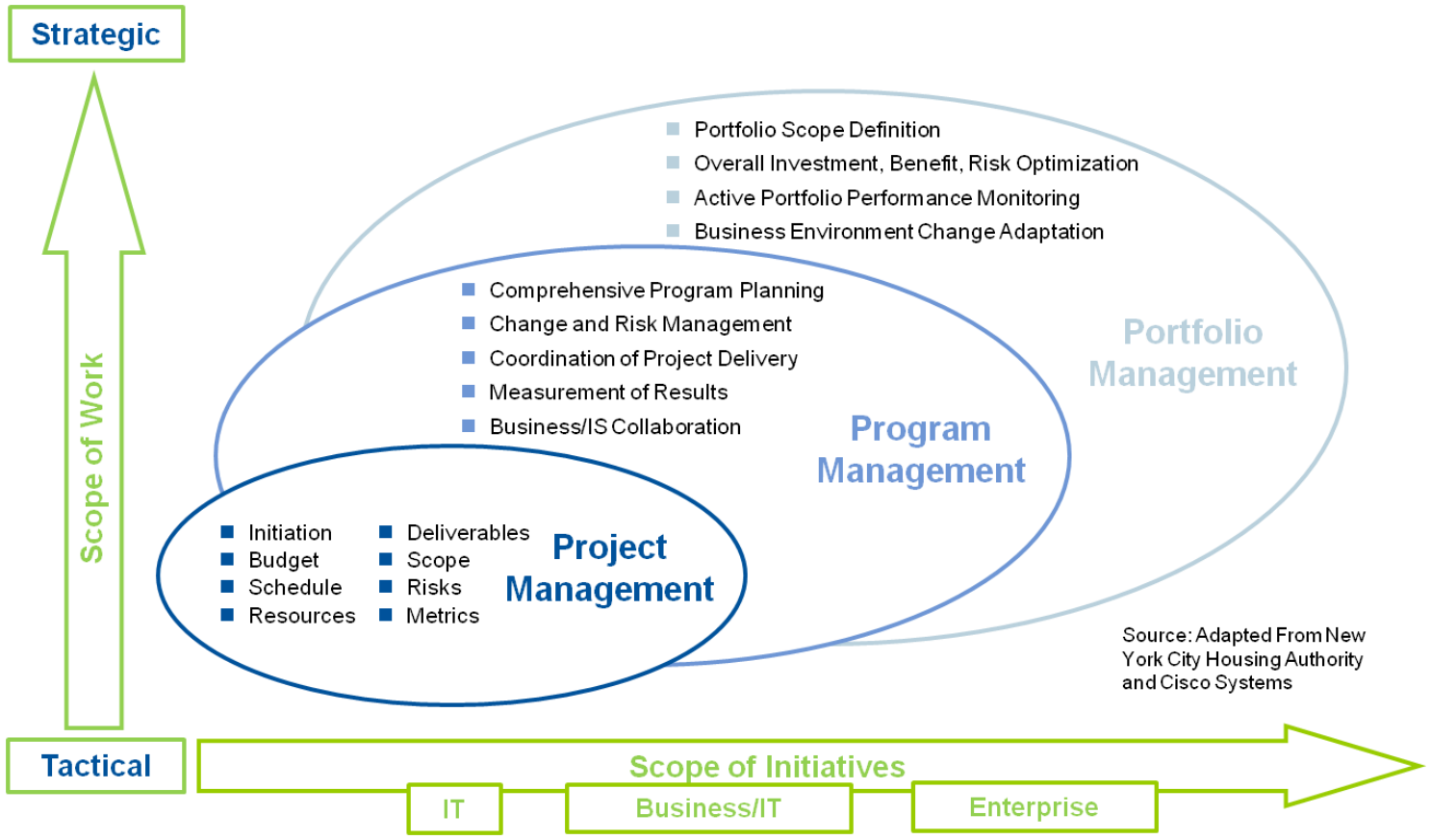
Strengths	Weaknesses
■ Some “Red Card” applications are being monitored using Vantage. ■ A few Agency Services teams regularly perform detailed on-time and on-budget project reporting to their customer agencies.	■ Only some applications have monitoring that includes both uptime/downtime availability measures, and individual page display performance metrics. ■ Availability and performance metrics produced by Vantage are not part of the monthly service level metrics reporting and are not published on an online dashboard for customers to reference any time they want. ■ Inconsistent reporting of on-time and on-budget status for application development projects.

Current State Assessment and Maturity Analysis

Program and Portfolio Management

Program and Portfolio Management

Role Definition — Portfolio Management



While DTMB is currently focused on project management, strategically the focus should expand to include program and portfolio management.

Program and Portfolio Management

Current State Overview

- The SUITE project management methodology is the established standard throughout DTMB.
- Several project management offices (PMOs) exist through the organization (see the following slide).
- DTMB has an Enterprise Portfolio Management Office (ePMO) that reports to a specific IO and that has limited authority due to its position in the organization.
  - DTMB wants to achieve best practices for the ePMO, including enterprise policy and oversight of project management and systems, standards and policy issuance, and centralized dashboards with insightful metrics.
  - DTMB would like to progress toward project and portfolio management becoming more forward-looking, enabling functions such as demand and resource management.
- DTMB has established an annual Call for Projects process that spans multiple levels (IO and Agencies, Infrastructure Services and ePMO).
  - There is a documented process flow for the enterprise Call for Projects, but it lacks true enterprise-level authority and currently serves as more of a reporting function.
  - There is little standardization or guidance around a Call for Projects at the agency/IO level. Each agency unit has its own process for prioritization.
  - Infrastructure Services has a Call for Projects process that happens in conjunction and in coordination with the Agency Services (ePMO) Call for Projects. There is a high degree of interdependence between the two processes.

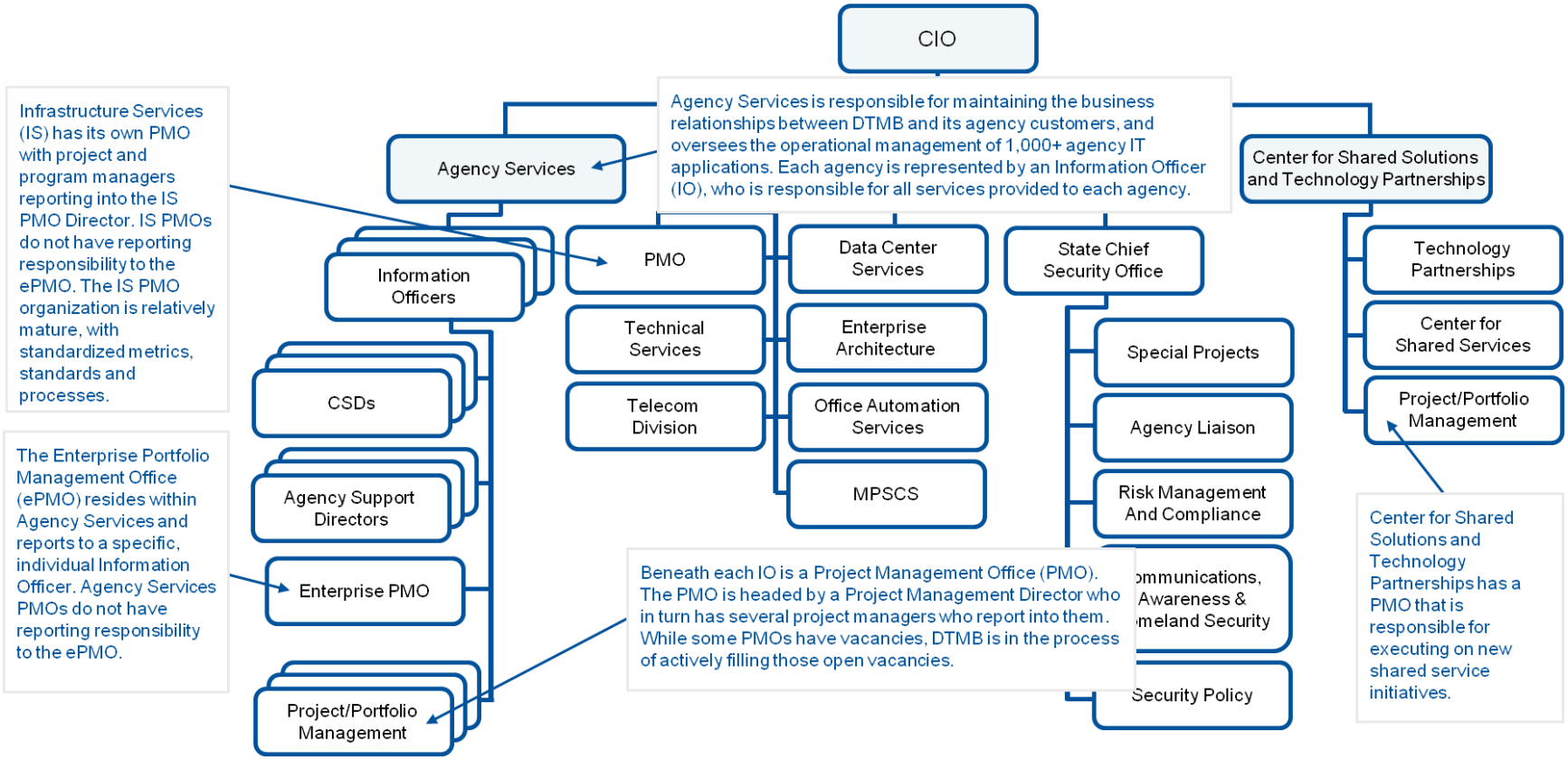
Program and Portfolio Management

Current State Overview (continued)

- Although ChangePoint has been selected as the enterprise project/portfolio management and reporting tool, several technology tools are in place for project management (i.e., SharePoint, Excel, Project, etc.), with little standardization across the enterprise.
- Currently, no enterprisewide dashboard to provide a central repository of project information and metrics. Project information is being rolled up into ChangePoint, but currently not at a level sufficient enough to provide a comprehensive enterprisewide view of projects in flight.
  - Basic metrics around project management are being provided to agency customers, although there are differing levels of metrics and little standardization.

Program and Portfolio Management

Current State Overview — Project Management Offices



Program and Portfolio Management

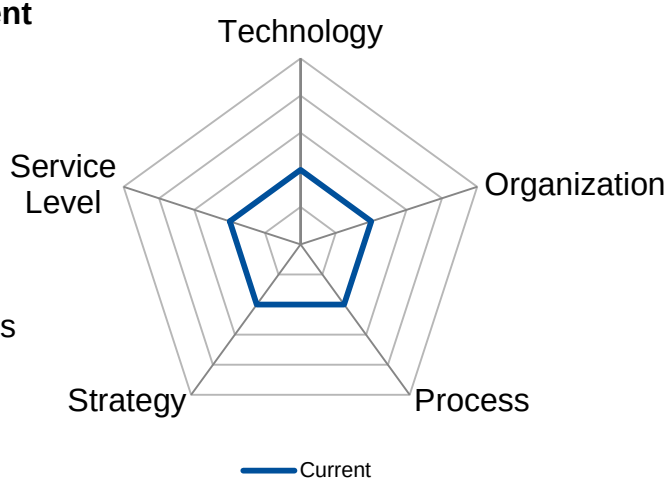
Gartner Framework — Gartner Research Recommends That Organizations such as DTMB Have the Following PMO Element Types in Place

Office Type	Present at DTMB?
Enterprise Portfolio Management Office (ePMO) Strategically oversees the investment in projects or programs as a way of creating enterprise value. Aims to enable informed decision making by senior management.	**Yes** (Early in maturity; reports to an Information Officer.)
Project Management Office (PMO) Created to manage and deliver specific projects within the organization.	**Yes**
IT Project Management Office (IT PMO) Typically focused on IT Infrastructure and Operations.	**Yes** (IS PMO)
Standards and Process Office Focuses on developing project management standards, processes and tools.	**Yes** (Integrated within the ePMO. Early in maturity; the IS PMO has its own Standards and Process Office.)
Program Administration/ Project Support Office (PSO) Provides project administration support, project resourcing and project management training.	**Yes** (Elements Integrated within each PMO. Likewise, the IS PMO has a PSO.)
Business Transformation Office Strategically drives competitive differentiation. Exists in very mature IT organizations.	**No**

Program and Portfolio Management

Major Findings

- **DTMB has limited enterprise insight into demand/resource management and benefits realization.**
  - Bottom Line: DTMB is unable to effectively perform portfolio and investment management and maximize enterprise value.
- **The organizational structure of DTMB limits the authority, oversight and executive reporting responsibility of the ePMO.**
  - Bottom Line: The ePMO is severely limited in its ability to effectively perform enterprise program and portfolio management because it reports to a single IO in Agency Services. For example, although DTMB has standardized on the SUITE methodology for project management, it has been inconsistently adopted.
- **Varying degrees of project management skill exist within various IO units.**
  - Bottom Line: Varying skill levels of project managers results in wide gaps in customer satisfaction. Additionally, agency customers often view DTMB as unable to deliver large or innovative projects on-time and on-budget.
- **Various agencies and IO units use differing tools to internally manage projects, and there is little institutionalization to maintaining project information into an enterprise reporting tool.**
  - Bottom Line: It is extremely difficult to roll up project data at an Enterprise Level and provide a centralized dashboard of project information and metrics. Likewise, it is difficult to execute portfolio management.



Program and Portfolio Management

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited IT systems or tools in place to support project and program management processes, including: ■ Strategy development tools ■ Automated resource management tools ■ Business modeling and process tools ■ Decision support tools ■ Risk modeling tools ■ Reporting dashboards ■ Project scheduling tools ■ Automated PPM workflow engine	**IT systems and tools are present to support project and program management processes; however, there is no coordination or standardization across the enterprise.** ■ Strategy development tools ■ Automated resource management tools ■ Business modeling and process tools ■ Decision support tools ■ Risk modeling tools ■ Reporting dashboards ■ Project scheduling tools ■ Automated PPM workflow engine	**IT systems and tools are in place to support project and program management, but have been procured without suitable alignment to user and operational requirements.** ■ Strategy development tools ■ Automated resource management tools ■ Business modeling and process tools ■ Decision support tools ■ Risk modeling tools ■ Reporting dashboards ■ Project scheduling tools ■ Automated PPM workflow engine	**IT systems and tools are in place to support project and program management across the enterprise and are consistently used.** ■ Strategy development tools ■ Automated resource management tools ■ Business modeling and process tools ■ Decision support tools ■ Risk modeling tools ■ Reporting dashboards ■ Project scheduling tools ■ Automated PPM workflow engine	**IT systems and tools are in place and support the enterprise's ability to improve and optimize operational performance.** ■ Strategy development tools ■ Automated resource management tools ■ Business modeling and process tools ■ Decision support tools ■ Risk modeling tools ■ Reporting dashboards ■ Project scheduling tools ■ Automated PPM workflow engine

Program and Portfolio Management

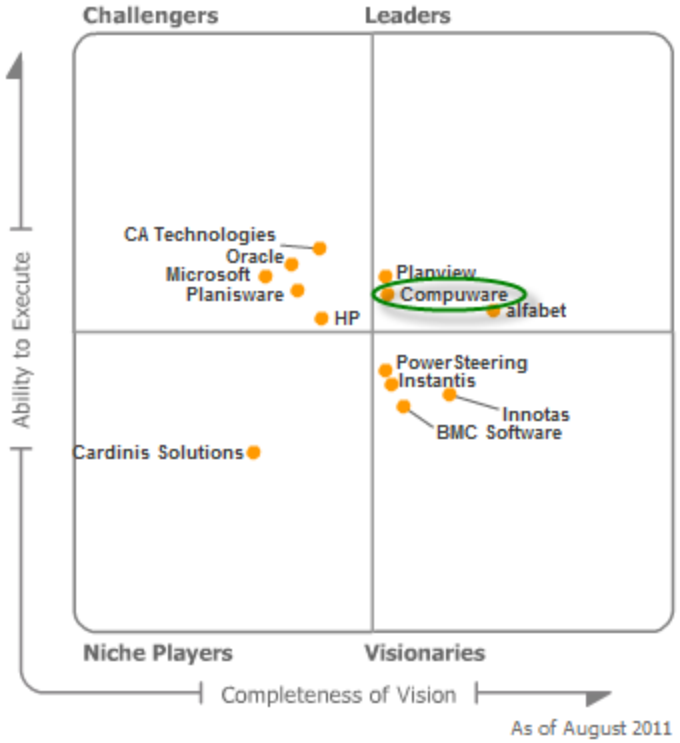
Current State Technology Assessment Rationale

Strengths	Weaknesses
■ DTMB is in the process of convening around a single enterprise project management tool — ChangePoint. ■ Currently working on providing enterprise-level dashboards to aid with portfolio management and provide an enterprisewide view of project metrics. ■ Have a documented framework and process in place for how information should be entered into ChangePoint by various IOs and CSDs. ■ There is a general sense of recognition around the need for an enterprise tool for program, resource and portfolio management.	■ Various agencies and IO units are using differing tools to internally manage projects (Microsoft Project, Microsoft Project Server, SharePoint, Excel, etc.). ■ Many tools to manage projects are manual tools (e.g., many of the tools to manage application development). ■ ChangePoint is viewed by several agencies as an unnecessary additional tool in an environment where far too many tools already exist. Furthermore, various IO units within Agency Services have not incorporated ChangePoint into their project management processes. ■ Some CSDs are not following process and fail to input substantial project information into ChangePoint. ■ Although there is recognition for an enterprisewide program, resource and portfolio management tool — there is no consensus on ChangePoint being the best tool to perform these functions. ■ Due to the various tools and processes in existence, it is extremely difficult to roll up project data at an enterprise level.

Program and Portfolio Management
Current State Technology Assessment

- Compuware's Change Point software product is recognized as a Gartner Magic Quadrant Leader

Magic Quadrant for Integrated IT Portfolio Analysis Applications



Program and Portfolio Management

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of responsibilities for PPM across the enterprise. Common attributes include: ■ Absence of a Program or Project Management Office; ■ Project management skills are limited and not standardized; ■ Project and program management roles and responsibilities are undefined; ■ Subject Matter Experts (SMEs) informally.	**Ownership of PPM reponsibilities within the enterprise exists, but the organization is immature and appropriate skill sets are not present. Common attributes include:** ■ Project Management Office is defined but it is not aligned for effective service delivery; ■ Duplicative functions/roles; ■ Inconsistently defined program and project roles and responsibilities; ■ Limited project management development and training budgets; ■ Ad hoc governance; ■ Non-optimized staffing levels; ■ PPM activities are limited to the interests and actions of individual managers.	**Project Management Office exists, is fairly mature and exhibits some best practices. PPM skill sets largely align with IT support needs. Common attributes include:** ■ Project Management Office is defined and aligned for effective service delivery; ■ Optimized or near-optimized staffing levels; ■ PMO collaborates with resource management to ensure project resources and capacity requirements are met; ■ All PMs report through to the PMO and are allocated to projects as needed; ■ Defined project management development and training budgets.	**Program Management Office that is integrated with other key processes and IT roles and is appropriately organized and staffed. Common attributes include:** ■ Focus on program coordination, governance, communication; ■ Organizational structure is defined and aligned for effective service delivery with appropriately resourced and skilled staff; ■ PMO is service-delivery-focused organization with strong relationship managers and service; ■ Established program for ongoing PPM training of resources; ■ Service-centric PPM organization with strong relationship managers.	**Portfolio Management Office where organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes include:** ■ Focus on investment optimization, benefits realization; ■ Reports to business, not CIO; ■ Formalized steering committee to prioritize, select and manage projects, programs and the IT portfolio; ■ Customer- and business-focused organization; ■ PPM leaders exist in all areas of the enterprise; ■ Virtual teaming; ■ Business/IT Staff rotation; ■ Developing best practices.

Program and Portfolio Management

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ Given the greater level of centralization and longer time period in existence, the Infrastructure Services PMO is fairly mature from an organization perspective. ■ Agency Services is actively working toward staffing each IO business unit with dedicated project managers. ■ An ePMO has been established to provide enterprisewide metrics and begin an effort toward portfolio management. ■ IOs are frequently meeting with Agency customers to provide qualitative updates as best they can on projects in flight, although quantitative metrics are commonly not involved. ■ Most Project Managers within the Infrastructure Services PMO have project management certification.	■ PMs (especially within Agency Services) have widely varying skill and experience levels, with some PMs being developers or having other job occupations. As a result of this varying skill level, some agencies have experienced PMs resulting in higher agency satisfaction, while other customers have either inexperienced PMs or none at all, resulting in agency dissatisfaction. ■ The Job Skills Assessment reported “Project Management” as one of the lowest-ranked job families in terms of skill level — only 26% of respondents were “qualified” or “highly qualified.” ■ The ePMO currently reports into an IO as part of Agency Services and does not span Infrastructure Services. Likewise, PMs do not report into the ePMO, nor does the ePMO have authority or oversight over PMs. ■ A lack of authority, oversight and executive reporting means that governance remains a challenge from an ePMO perspective and that the ePMO is severely limited with regard to effectively performing enterprise project and portfolio management. ■ Limited ePMO staff is adequate for reporting purposes, but currently not equipped for resource management and program management prioritization and oversight.

Program and Portfolio Management

Current State Organization Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Resources are not commonly pooled or shared across IOs. ■ Resource management is done on an agency-by-agency basis and not on an enterprisewide level. ■ The pace at which projects can be accomplished declines as a result of resource management being unknown and resources not being more effectively shared across the enterprise. ■ In certain instances, PMOs have limited direct contact with agency staff (including Business Analysts), with interaction being filtered through the IO (or CSD).

Program and Portfolio Management

Current State Organization Assessment Rationale — Capabilities by Project Management Job Family

- Job Family Strength (for FTEs currently in this job family):

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Project Management	12	16	80	108	26%

- 10 Foundational Skills and five Critical Competencies Strength for Job Family:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Lead Long Projects (12+ Months)	40.7%
Lead Medium Projects (3-12 Months)	43.5%
Lead Short Projects (1-3 Months)	53.7%
Project Estimating	27.8%
Project Management Institute (PMI)	22.2%
Project Management Tools	30.6%
Project Scheduling	39.8%
Project Scope Management	40.7%
Project Tracking and Reporting	46.3%
Risk Management	29.6%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies (% of FTEs at or below Expected Competency Proficiency Levels)	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Building Partnerships	19.4%	46.3%	34.3%
Communications	8.3%	50.0%	41.7%
Information Seeking	29.6%	43.5%	26.9%
Initiating Action	13.9%	47.2%	38.9%
Quality Orientation	23.1%	46.3%	30.6%

At or Above 60% 40% to <60% Below <40%

While Project Managers possess adequate skills in the "harder" foundational skills, they reported a concerning lack of skill in critical competencies or "soft skills."

- Bench Strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	25
Qualified	87
HQ+Q	112

Program and Portfolio Management

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
PPM processes are non-existent, or ad hoc. Common attributes, include: ■ Completely ad hoc PPM processes that are not documented, standardized, measured or continuously improved; ■ Project success largely dependent on individual efforts.	**PPM processes are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes include:** ■ Processes are neither well defined nor repeatable; ■ Some or most processes documented; ■ Processes are not standardized or measured, and there is no method for improvement; ■ A formal process is used for modeling costs for projects and programs; ■ Project manintoring and oversight perfornmed ad hoc or for problem projects only.	**PPM processes are standardized and documented and are consistently applied to the organization. Common attributes include:** ■ Defined project management methodology is actively communicated across the IT organization and is regularly followed; ■ No or informal measurement or means of improving those processes; ■ Sets of interdependent projects are managed as programs; ■ Some processes and procedures may be manual or inefficient, and workarounds are present; ■ Templates for time tracking, project mgt, risk management, deliverables, etc.; ■ A formal process is used to periodically review project or program costs.	**PPM processes are well defined and managed consistently across the enterprise. Common attributes include:** ■ Project portfolios are defined and largely aligned with business strategy; ■ PMO consistently manages the Project Portfolio based on defined criteria and on input from Account Management, Enterprise Architecture and Product Management; ■ Systems, methods and practices are followed with appropriate governance; ■ To facilitate stakeholder adoption, business process changes are accounted for and addressed as part of the project or program; ■ Benefit statements provide formal metrics; ■ Mechanisms are in place across the enterprise to ensure compliance.	**PPM processes are mature and efficient. Common attribute, include:** ■ Business leaders are actively engaged in IT portfolio management; ■ An enterprise portfolio consisting of strategic projects and programs is used to execute strategy; ■ Benefit realization is supported by a PPM process; ■ Processes, methods and supporting systems are integrated; ■ Control/governance mechansims are in place to feed a cycle of continual enhancement and evolution across the enterprise; ■ Time and cost are tracked for every project participant and resource.

Program and Portfolio Management

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Although not thoroughly institutionalized, standardized methodologies are in place in the form of SUITE — a PMI-based methodology. ■ A documented process flow for the enterprise Call for Projects does exist. ■ The ePMO has a documented method for prioritizing and recommending projects.	■ "Maintenance is ~70% of what resources are working on and currently Agency Services is not doing a very good job of tracking maintenance and upgrade-related projects." ■ "Demand management is not being tracked effectively, with no standardized processes in place to measure demand and capacity." ■ Commonly, dates are moved and/or target dates are not met as a result of a standardized and institutionalized demand management process not being in place. ■ Several agencies either do not participate in the enterprise Call for Projects during any given year, or participate to a limited degree. There is a sense among many agency customers that the Call for Projects at the enterprise level is of limited use, as they already have several projects in the pipeline that still are yet to be completed. ■ Although there are enterprise-level recommendations on project prioritization, they are often ignored by the various customer agencies. ■ Many agencies and their IO business units do not have a documented process for a Call to Projects at the agency level, with processes varying agency-by-agency. Likewise, project management processes vary among PMOs.

Program and Portfolio Management

Current State Process Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ A review process to revisit projects in flight to evaluate on their initial business case is in the early stages of maturity. As a result, projects are rarely stopped and there are likely ongoing projects that are no longer meeting their initial business case. ■ Several agencies are able to use non-IDG funding to manage projects and procure vendor services without DTMB involvement and without following standard process. As a result, these projects often do not align with DTMB strategy nor are they captured in DTMB's portfolio of projects. ■ Lack of formalized processes means that resource allocation often relies on informal processes, such as vocal or "problem customers" getting priority with regard to project prioritization.

Program and Portfolio Management

Current State Process Assessment Rationale — Governance Within DTMB for Project and Portfolio Management Is Still Immature

- A governance maturity framework is helpful in evaluating areas of growth for governance processes.

Maturity	Decision making style	Business Outcomes	Strategic Planning Approach	Leadership Style	Accountability Approach	Risk Approach	Fiscal Approach
None	Decision making is random, rather than deliberate and coordinated.	Enterprise is slow to react to competitive threats, weak resource management and poor transparency.	Minimal to no strategic planning taking place.	Follows practice or doctrine of non-interference with individuals or business units.	"I can do what I want."	Ignore/deny risks.	Distribution of budget to individuals and groups with weak central controls.
Isolated Competency	Decision making is deliberate for high-risk efforts or crises only.	Performance improves in distinct pockets of the enterprise only.	Near-term-focused and limited in scope to key initiatives.	Focused on high-priority or high-stress activities and delegates other activities.	"I'm on a high-visibility project that gets attention."	Respond reactively to imminent risks only.	Funds allocated parochially to a community or set of initiatives.
Risk Mitigation	Decisions driven by constrained resources or compliance issues.	Reduced costs, and reduced waste of resources. Greater regulatory compliance.	Longer-term-focused, but created in response to specific events or immediate conditions.	Control-oriented and deliberate; averse to delegating to others.	"I am responsible for delivering on time and on budget."	Proactively identify and manage cost, compliance and security risks.	Cost accounting and cost recovery focus with little variability or agility in budgets.
Benefit Optimization	Decisions are driven from the top down, based on a clearly articulated strategy and guiding principles.	Predictable ROI and growth, and measurable operational improvements.	Long-term-focused, based on taking advantage of enterprise synergies and coordinated efforts.	Devolved style with clear prioritization and guidance moving through enterprise layers.	"I am responsible for ensuring my assets deliver value to my colleagues in the enterprise."	Accept and manage business risks based on an ROI model.	IT portfolio managed at the run/grow/transform level.
Competitive Innovation	Decisions are made dynamically and at a high rate of speed.	Ability to innovate and deliver competitive advantages in spite of competition or environment.	Strategy iterates rapidly in response to competitive opportunities and threats.	Heavy focus on experimentation and problem-solving activities.	"I am responsible for finding game-changing ways to compete."	Take calculated risk for competitive advantage.	Venture capitalist approach to financial management.

Program and Portfolio Management

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined project, program or portfolio strategy or strategic planning function. Common attributes include: ■ Operational process and/or technology investment decisions are made locally and indepedently as funding is made available; ■ PPM does not have its own goals and objectives, and simply executes projects as they come; ■ PPM has no means of understanding whether or not it is aligned with DTMB's overall strategy; ■ No process and/or governance in place to ensure PPM's ongoing alignment with DTMB's overall strategy.	**High-level PPM strategy is defined but does not have measurable objectives. Common attributes include:** ■ Common practices and lessons learned that are organixaly inform strategy; ■ PPM has its own goals and objectives, but there is no real consideration for aligning it with the overall DTMB strategy; ■ Some process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy.	**PPM strategy is defined and communicated; however, it is not effectively translated into consistent action. Common attributes include:** ■ Governance is inadequately established, allowing for the implementation of the strategy to become fragmented and confused across the enterprise; ■ PPM has its own goals and objectives that partially align with DTMB's overall strategy; ■ Reactively determines how well they are aligned to DTMB's overall IT Strategy; ■ Ineffective or nascent process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy, or ability to take corrective action when it is getting out of alignment.	**PPM strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ Project portfolios extend beyond IT; ■ Mature portfolio management objectives with defined objectives and metrics; ■ An appropriate governance structure is in place to oversee and ensure the execution of the strategy; ■ PPM has its own goals and objectives that fully align with DTMB's overall strategy; ■ PPM proactively determines how well they are aligned to DTMB's overall strategy.	**PPM strategy spans the business and is integrated into enterprise strategic planning, is continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ PPM strategy is integrated with other enterprise processes; ■ Effective governance structure is in place to oversee the execution of the strategy; ■ Effective PPM processes and/or governance in place to ensure ongoing alignment with DTMB's overall IT Strategy, and to take corrective action when it is getting out of alignment.

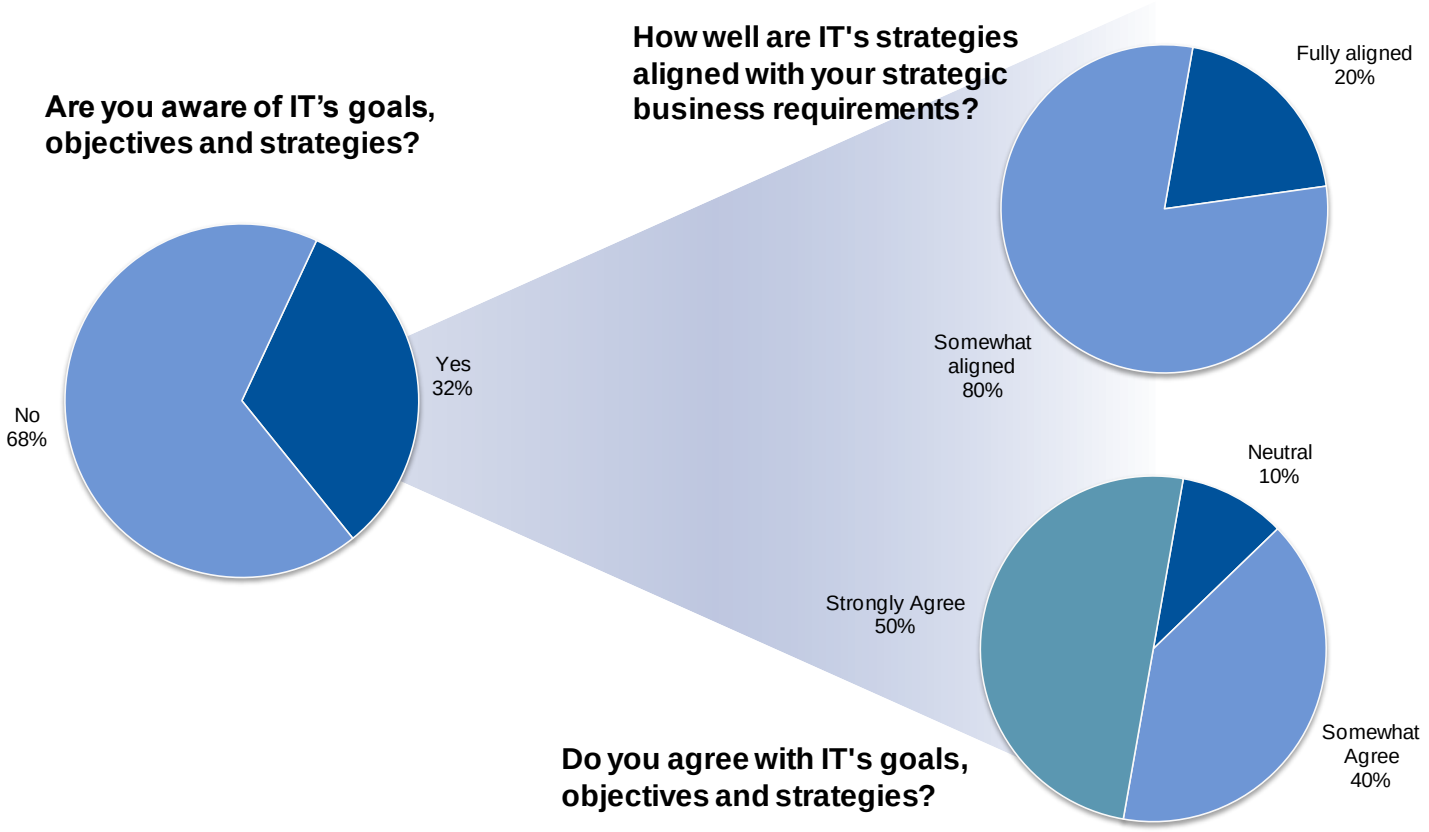
Program and Portfolio Management

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ A documented Call for Projects strategy is in place at the Enterprise level. ■ An initial, documented road map for Project and Portfolio Management and Life Cycle Management has been developed. ■ DTMB has plans to roll out a subsequent phase of enterprise project and portfolio management next September (September 2012) to capture more granular information such as budget information and track labor, materials, etc., against the project. The goal is to track project process more comprehensively. ■ The ePMO has a vision of strategically maturing the office to increasingly include Program and Portfolio management responsibilities.	■ "Many agencies are unaware of DTMB's strategy, making it difficult to align agency strategy with DTMB strategy." – Only 32% of agencies surveyed reported being aware of DTMB's objectives and goals. ■ Agencies and IOs are not always working together at a strategic level for project management and the Call for Projects. ■ Currently, agency projects are often not aligned with DTMB or Agency strategy, and agencies are routinely failing to work with IOs at a strategic level.

Program and Portfolio Management

Current State Strategy Assessment Rationale — ITBE Survey Results



ITBE survey results show only one-third of the customers were aware of IT's goals, objectives and strategies. Of that one-third, only 20% thought that IT's strategies aligned with their strategic business requirements.

Program and Portfolio Management

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
PPM service levels not clearly defined or negotiated with the customer. Common attributes include: ■ No PPM service levels or metrics for which they are accountable to either end customers or other groups within DTMB; ■ No means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Basic PPM service levels exist, but performance is not effectively measured. Common attributes include:** ■ Few metrics are defined for PPM; ■ No or a few basic PPM service-level agreements and metrics for which they are accountable to either end customers or other groups within DTMB; ■ Ability to accurately calculate metrics is limited; ■ Little means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**PPM service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate PPM metrics that end customers partially believe to be accurate; ■ PPM is partially able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Metrics mostly related to project and project manager performance; ■ No means of continuously improving to achieve better levels of customer satisfaction; ■ Servlce levels to support chargeback and other financial allocation mechanisms exist but are not fully mature.	**PPM service-level agreements and metrics are established, and the IT support organization is managing to agreed-upon service levels. Common attributes include:** ■ PPM service-level agreements and metrics for which they are accountable to benchmark against peers; ■ Ability to accurately calculate PPM metrics that end customers and other DTMB groups mostly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Ability to work toward improving actual delivery to current service-level agreements; ■ Servlce levels to support chargeback and other financial allocation mechanisms exist.	**PPM service-level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate PPM metrics that end customers truly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Means of continuously improving to achieve better levels of customer satisfaction and to increase those service levels in the future; ■ Best-practice chargeback and other financial allocation mechanisms are in place.

Program and Portfolio Management

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ For IO units with standardized project management processes and experienced PMs, agency satisfaction with project management services was often adequate. ■ Agency customers typically were satisfied with project management services provided by contractors.	■ DTMB is perceived as not being able to deliver big projects on time and on budget (e.g., Business Application Modernization project for the Secretary of State has been in progress since 2003, yet only 15% has been completed). ■ DTMB is often viewed by customers as not having the skills to deliver on many larger-scale or innovative projects. Fearing that DTMB does not have the skills to complete large projects on time and on budget, many customers prefer to go with outside contractors and vendors. ■ Customer satisfaction with project management services varies, based on the skill and experience of the PMO staff and the ability to hire specialized contractors. ■ Agency customers report seeing little to no consistent metrics for project management for projects in flight. As a result of inconsistent and often lacking metrics, many managers report that they have little quantitative insight into projects currently in flight. ■ DTMB is often unable to adequately provide provisioning in a timely fashion to meet new customer demands (e.g., almost every agency wants mobility projects to be provisioned much faster than DTMB can achieve).

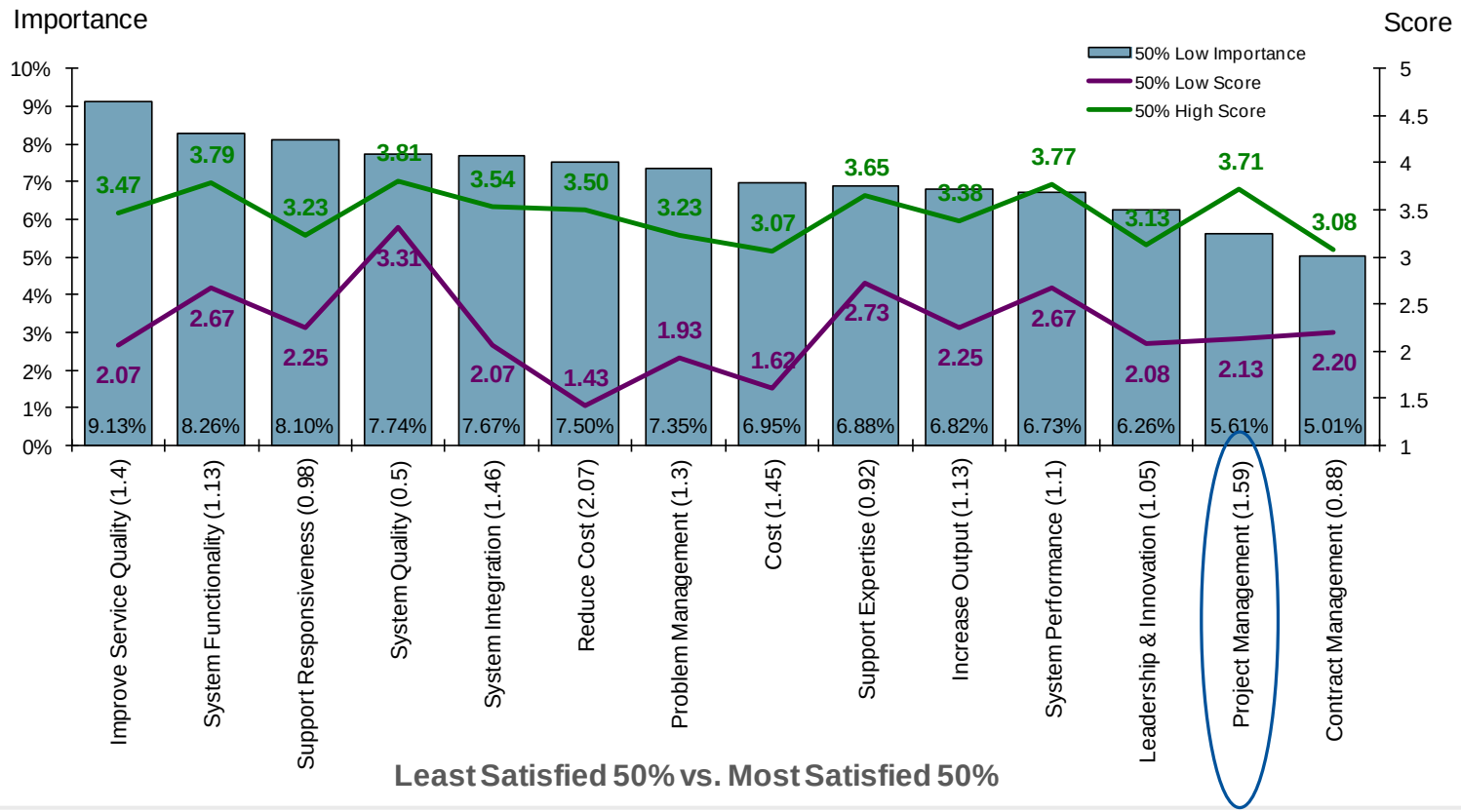
Program and Portfolio Management

Current State Service Level Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ No centralized dashboard exists at the enterprise level for insight on current projects. ■ Project management is often lacking in transparency, and siloed IO business units do not have much insight on projects outside their agency units.

Program and Portfolio Management

Current State Service Level Assessment Rationale



ITBE survey results show that there is a large gap between satisfaction scores for project management. A major driver of this perception gap is the varying skills of PMs and the various levels of process standardization.

Current State Assessment and Maturity Analysis

Business Intelligence and Performance Management

Business Intelligence and Performance Management

Gartner Framework — Business Intelligence

Business Intelligence

Integration

- BI infrastructure
- Metadata management
- Development environment
- Workflow and collaboration

Information Delivery

- Reporting
- Ad hoc query
- Dashboards
- Search-based BI

Analysis

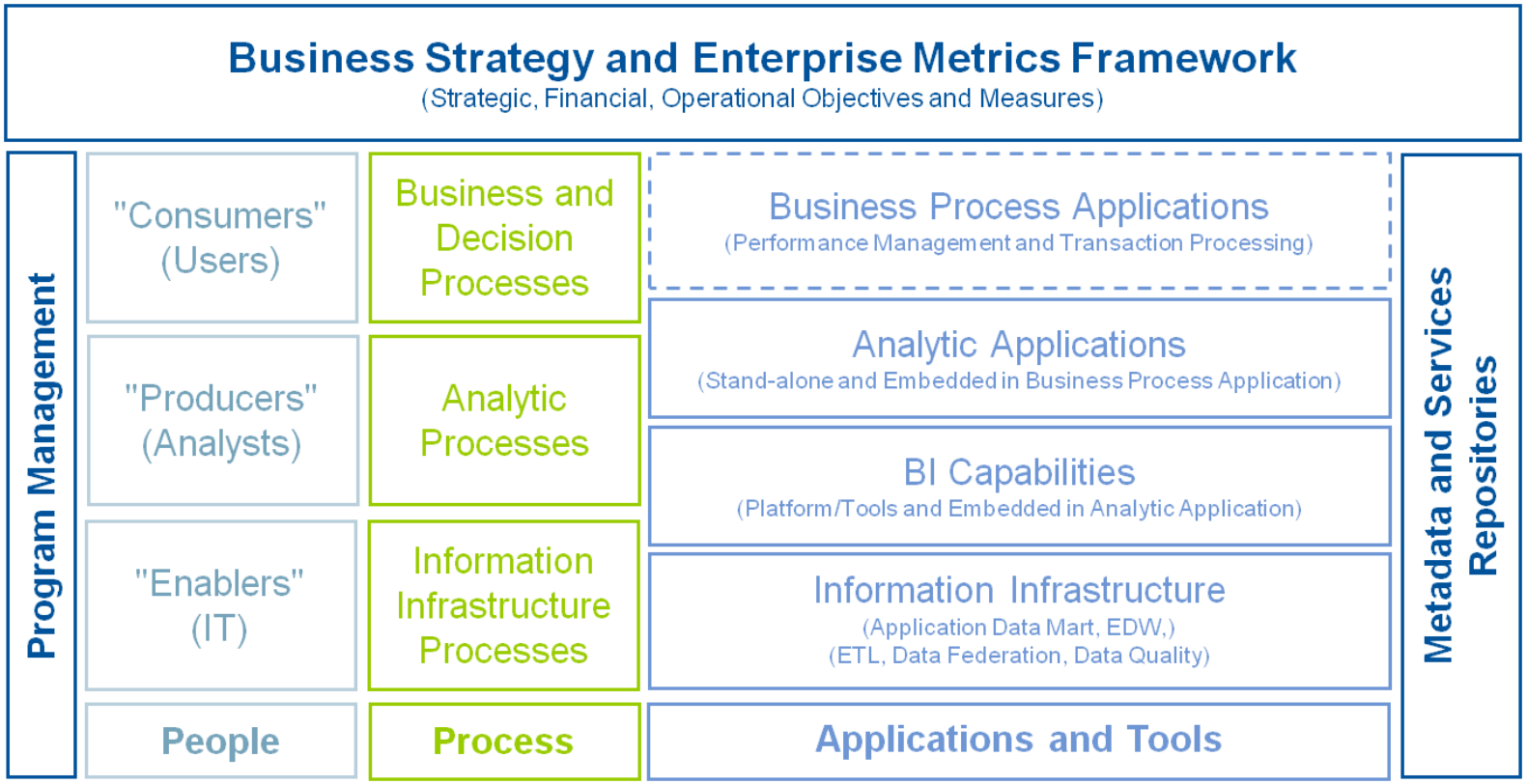
- Online Analytical Processing (OLAP)
- Scorecarding
- Visualization
- Predictive modeling and data mining

Business Intelligence involves more than just the technical platforms for generating reports. It also involves the management of data for historical and predictive analytic purposes, as well as the governance of information utilized throughout the enterprise.

Gartner

Business Intelligence and Performance Management

Gartner Framework — Performance Management



The top-level agency metrics developed as part of Performance Management should drive all the analytics and reporting activities down through each of the management layers in the agencies, and it should all be supported by enterprise information management/governance.

Gartner

Business Intelligence and Performance Management

Current State Overview

BI Capabilities

- Primary financial data warehouse (MIDB) utilizes Oracle DBMS.
- Teradata is considered the “Enterprise Data Warehouse,” since nine departments’ worth of data are in there, and it is organized as one data warehouse for those nine departments. There are approximately 10,000 end users for this data warehouse.
- BusinessObjects being used for primary reporting layer for both Oracle and Teradata, but Cognos, InformationBuilders Webfocus, Crystal Reports, JSURS and OpenText’s BI Query also being used.
- Capacity planning refresh just occurred, with a 25% growth assumption each year for the next four years.
- The maintenance of the core Teradata platform has been outsource to Teradata themselves.
- Teradata hardware maintained by a third party called Optum.

Analytic Applications

- SAS has been chosen by CEPI as its analytics tool on MS SQL Server, and they have their own separate enterprise data warehouse service.

Information Infrastructure

- Approximate total database size is 11 terabytes’ worth of data that go back to 1997.
- Teradata Parallel Transporter, DataStage and custom SQL being used for ETL activities.
- No BI Competency Center/COE today, with ad hoc sharing of resources across agencies.

Business Intelligence and Performance Management

Current State Overview (continued)

Program Management

- BI projects do not go through “Call for Projects” process; project prioritization done at the department level.

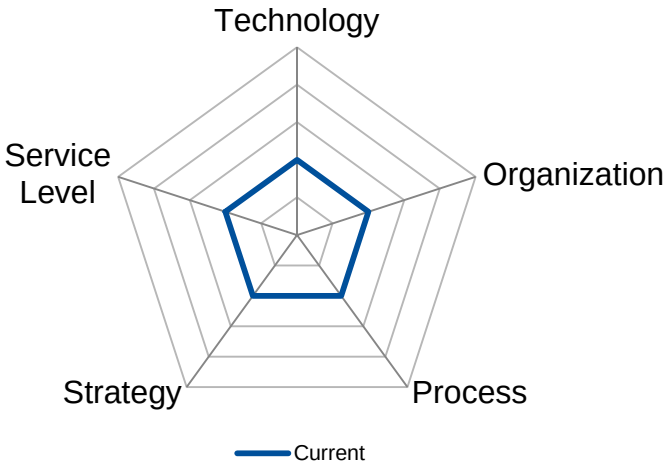
Business Strategy and Enterprise Metrics

- No BI Competency Center/COE exists today, with ad hoc sharing of resources across agencies.
- Each agency BI team maintains its own data warehouse, but nascent EIM capability exists in Shared Services.
- Performance Management being done via many manual processes to get the info on the MiDashboard website.
- Reporting and Analytics efforts at the top level are not currently aligned all the way through mid-level management reporting and on down to day-to-day operational reporting in the source applications.

Business Intelligence and Performance Management

Major Findings

- **No centralized Business Intelligence center of excellence (COE) exists to coordinate BI/CPM activities across DTMB.**
  - Bottom Line: Performance Management is not connected to BI, which is not connected to Enterprise Information Management.
- **Currently utilizing many industry-leading tools, such as Teradata, Oracle DBMS, MS SQL Server, Cognos and BusinessObjects.**
  - Bottom Line: Many of the right technology tools have been chosen, but they are not standardized across agencies and there is a high reliance on custom scripts.
- **Different agencies are using different tools to do Business Intelligence, and efforts are not standardized.**
  - Bottom Line: Each BI agency group is operating independently and, therefore, the BI function is immature.
- **Different agencies have their own DW/BI initiatives that they control, and that puts DTMB in a reactionary position.**
  - Bottom Line: Individual BI teams are getting whiplashed by constantly changing priorities from each agency.



- **Significant Performance Management capability in the Office of Enterprise Development.**
  - Bottom Line: The ability to hone in on the right target is in place, and DTMB has a foundation from which to enhance performance management.
- **Limited toolset of Excel, PowerPoint and SharePoint for Performance Management activities.**
  - Bottom Line: Reporting cycle times are lengthened, and ability to provide constant metrics feedback is hampered.

Business Intelligence and Performance Management

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited IT systems or tools in place to support business intelligence, including functions and tools such as: ■ Corporate performance management and financial analytics; ■ Web analytics; ■ Customer service analytics; ■ Content analytics; ■ Social Network analysis; ■ Datamart/datawarehouse; ■ ETL tools; ■ OLAP/OLTP.	**IT systems and tools are present to support business intelligence, including functions and tools such as those listed below. However, tools, applications and data are largely siloed and there is only ad hoc coordination or standardization across the enterprise.** ■ Corporate performance management and financial analytics; ■ Web analytics; ■ Customer service analytics; ■ Content analytics; ■ Social Network analysis; ■ Datamart/datawarehouse; ■ ETL tools; ■ OLAP/OLTP.	**IT systems and tools are in place to support business intelligence, including functions and tools such as those listed below. Centralized data repository(ies) in place, and some enterprise analytics performed.** ■ Corporate performance management and financial analytics; ■ Web analytics; ■ Customer service analytics; ■ Content analytics; ■ Social Network analysis; ■ Datamart/datawarehouse; ■ ETL tools; ■ OLAP/OLTP.	**IT systems and tools are in place to support business intelligence across the enterprise and they are consistently used, including functions and tools such as those listed below. BI used as indicators of performance for tactical improvement.** ■ Corporate performance management and financial analytics; ■ Web analytics; ■ Customer service analytics; ■ Content analytics; ■ Social Network analysis; ■ Datamart/datawarehouse; ■ ETL tools; ■ OLAP/OLTP.	**IT systems and tools are in place and support the enterprise's ability to improve and optimize operational performance using business intelligence, including functions and tools such as:** ■ Corporate performance management and financial analytics; ■ Web analytics; ■ Customer service analytics; ■ Content analytics; ■ Social Network analysis; ■ Datamart/datawarehouse; ■ ETL tools; ■ OLAP/OLTP.

Business Intelligence and Performance Management

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ Currently utilizing many industry-leading tools, such as Teradata, Oracle DBMS, MS SQL Server, Cognos and BusinessObjects. ■ Agency-based “super-users” are able to create their own reports, with DTMB providing underlying data views. ■ Some data sharing occurring across agencies utilizing the Teradata platform.	■ Different agencies are using different tools to do Business Intelligence, and efforts are not standardized. This results in: – Limited knowledge sharing between agencies utilizing different platforms to do BI and ETL – Extra spend on the maintenance of several different kinds of BI tools. ■ Not currently obtaining data from all of the source systems that customers would like. ■ Utilizing many custom scripts to perform extraction, transformation and load routines. ■ Limited toolset of Excel, PowerPoint and SharePoint for Performance Management activities. ■ Some customers cannot currently perform predictive analytics that they desire, although DCH has this capability.

Business Intelligence and Performance Management

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of responsibilities for business intelligence across the enterprise. Common attributes include: ■ Business application, business analysts, IT staff, executive management and PPM users have low levels of skills required to leverage BI initiatives; ■ Reporting requires individuals aggregating data from disparate data sources with known gaps; ■ Low staffing levels and skill sets; ■ Undefined roles and responsibilities; ■ Low customer confidence in IT.	**Ownership of business intelligence responsibilities within the enterprise exists, but the organization is immature and some of the appropriate skill sets are not present. Common attributes include:** ■ Business application, business analysts, IT staff, executive management and PPM users have low levels of skills required to leverage BI initiatives; ■ Missing key organization functions/roles; ■ Inconsistently defined roles and responsibilities; ■ Limited staff development and training budgets; ■ Duplicative roles; ■ Non-optimized staffing levels.	**Organization is fairly mature and exhibits some best practices. Skill sets largely align with business intelligence needs. Common attributes include:** ■ Business application, business analysts, IT staff, executive management and PPM users have medium levels of skills required to leverage BI initiatives; ■ Alignment of resources by roles and skills; ■ Appropriate staffing or skills not in place for some elements of business intelligence; ■ Optimized or near-optimized staffing levels; ■ Working to adopt best practices; ■ Comprehensive staff development programs.	**Business intelligence organizational structure is defined and aligned for effective service delivery, with appropriately resourced and skilled staff. Common attributes include:** ■ Business application, business analysts, IT staff, executive management and PPM users have high levels of skills required to leverage BI initiatives; ■ Business intelligence and performance DTMB; ■ Established program for ongoing training of resources; ■ Metrics-driven performance management; ■ Detailed role definition.	**Business intelligence competency center exists, and organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes include:** ■ Business application, business analysts, IT staff, executive management and PPM users have high levels of skills required to leverage BI initiatives; ■ Organizational structure is defined and aligned for effective service delivery, with appropriately resourced and skilled staff.

Business Intelligence and Performance Management

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ Some knowledge sharing via brown-bag lunches and similar activities through the Center for Shared Solutions, and the Data Center has quarterly Common Interest Group meetings with all client agencies to share experiences, enhancements, and tips and techniques. ■ Approximately 100 developers with State and contractor personnel supporting agency BI requirements, although there are not enough to keep up with the ongoing project demand in the queue.	■ No Business Intelligence Center of Excellence or similar organization exists currently. As a result, developing consistent and standardized processes across BI teams is very difficult. ■ In the Job Skills Inventory, less than 30% of staff in the Business Intelligence job family rated themselves as qualified or highly qualified. ■ More reliant on contractors today than desired.

Business Intelligence and Performance Management

Current State Organization Assessment Rationale — Capabilities by Business Intelligence Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Business Intelligence	1	3	10	14	29%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Business Intelligence Platforms (Design, Configuration, Maintenance)	28.6%
Business Process	21.4%
Business Requirements Analysis	35.7%
Data Analysis	50.0%
Data Quality	35.7%
Industry Trends & Directions	7.1%
Online Analytical Processing (OLAP)	14.3%
Operational Data Stores (ODS)	7.1%
Query and Database Access Tools	42.9%
Standards, Procedures and Policies (Security, BI)	14.3%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	0.0%	28.6%	71.4%
Change Advocate	0.0%	64.3%	35.7%
Customer Focused	7.1%	0.0%	92.9%
Information Seeking	7.1%	42.9%	50.0%
Innovation	0.0%	50.0%	50.0%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	29
Qualified	81
HQ+Q	110

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Business Intelligence and Performance Management

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Business intelligence processes are nonexistent, or ad hoc. Common attributes include: ■ Completely ad hoc processes that are not documented, standardized, measured or continuously improved; ■ "Reinvention of the wheel," duplicative efforts.	**Business intelligence processes are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes include:** ■ Processes are neither well defined nor repeatable; ■ Some or most processes documented; ■ Processes are not standardized or measured, and there is no method for improvement.	**Business intelligence processes are standardized and are consistently applied to the organization. Common attributes include:** ■ Some processes and procedures may be manual or inefficient, and workarounds are present. ■ No measurement or means of improving those processes.	**Business intelligence processes are well defined and managed consistently across the enterprise. Common attributes include:** ■ Senior executives, business users and IT collaborate on intelligence and performance management requirements definition; ■ Systems, methods and practices are followed with appropriate control and governance; ■ Mechanisms are in place across the enterprise to ensure compliance.	**Business intelligence processes are mature and efficient. Common attributes include:** ■ Information and analysis from BI initiatives play a key role in the business decision-making processes; ■ Business community adopts business intelligence information and analysis as a regular practice; ■ Control/governance mechanisms are in place to feed a cycle of continual enhancement and evolution across the enterprise.

Business Intelligence and Performance Management

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Data warehouse/business intelligence-specific Change Control Board has been established with weekly meetings to control changes going into production across the agencies. ■ Strong Performance Management process capability with the ability to support agencies in developing scorecard/dashboard metric definitions, calculations and identification of appropriate data sources.	■ Enterprise Information Management/Master Data Management processes currently do not exist across the enterprise. This results in: – Duplication of data across agencies and data sets – Difficulty in developing data-sharing agreement across agencies. ■ Data cleansing performed individually by each agency DW/BI team. ■ QA being performed by end-user teams; unclear if there is a QA step before handing over to end users. ■ Data warehouse projects currently do not go through Call for Projects processes. ■ Different agencies have their own DW/BI initiatives that they control, and the agencies are changing priorities very frequently. The number of agency-specific BI initiatives makes the reuse of code very difficult to achieve.

Business Intelligence and Performance Management

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined strategy for business intelligence. Common attributes include: ■ Operational process and/or technology investment decisions are made locally and independently (in isolation of the wider enterprise) as funding is made available; ■ The IT role does not have its own goals and objectives, and simply reacts to most-vocal or influential customers (either internal or external); ■ The IT role has no means of understanding whether or not it is aligned with DTMB's overall strategy.	**A business intelligence strategy exists, but it is not coordinated, not clearly defined and does not have measurable objectives. Common attributes include:** ■ Strategy does not fully integrate with the wider organization, nor is it communicated enterprisewide; ■ The IT role has its own goals and objectives, but there is no real consideration for aligning it with the overall DTMB strategy; ■ Some means of understanding whether or not it is optimizing to its own desired goals, but cannot determine if it is really working toward DTMB's overall strategy; ■ No process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy.	**The business intelligence strategy is defined and communicated; however, it is not effectively translated into action. Common attributes include:** ■ Information and analysis used in support of one-off tactical decisions; ■ The IT role has its own goals and objectives that partially align with DTMB's overall strategy; ■ Reactively determines how well they are aligned to DTMB's overall IT Strategy; ■ Ineffective or nascent process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy, or ability to take corrective action when it is getting out of alignment.	**The business intelligence strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ Information and analysis used as key drivers in strategic decision-making process; ■ An appropriate governance structure is in place to oversee and ensure the execution of the strategy; ■ Business intelligence has its own goals and objectives that fully align with DTMB's overall strategy; ■ Adequate process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy, or to take corrective action when it is getting out of alignment.	**Business intelligence is closely integrated into, and informs, enterprise strategic planning. The strategy is continually reviewed and updated to align with business objectives. Common attributes include:** ■ Business and IT resources collaborate to develop and refine business intelligence strategy and requirements; ■ DTMB business intelligence strategy includes customers and business partners as appropriate; ■ Strategy is clearly defined and communicated throughout the enterprise; ■ Effective processes and/or governance in place to ensure ongoing alignment with DTMB's overall IT Strategy, and to take corrective action when it is getting out of alignment.

Business Intelligence and Performance Management

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ Each agency team meeting with its respective agencies regularly to determine and fulfill their needs for underlying data warehouses. ■ Office of Enterprise Development's Performance Management team has a complete vision of dashboarding/scorecarding at the highest level. ■ Data Warehousing organization received a NASCIO award for the DHS Decision Support System. ■ Improved fraud detection enabled as part of DCH CHAMPS initiative, which is an important part of the DCH agency strategic plan.	■ Inconsistent BI strategies across agencies. ■ No Enterprise Information Management strategy currently exists at enterprise level. ■ No Master Data Management strategy currently exists at enterprise level. ■ No clear evidence of connecting Performance Management efforts to the BI initiatives happening within the agencies. This results in an unclear line of sight from highest strategic metric level down to the reporting that frontline level managers are seeing.

Business Intelligence and Performance Management

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Business intelligence services are not clearly defined or negotiated with the customer. Common attributes include: ■ No service-level agreements or metrics for which they are accountable to either end customers or other groups within DTMB; ■ No means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Business intelligence services are provided in the form of standard reporting and some analytics, but performance is not effectively measured. Common attributes include:** ■ No or few objectives or metrics are defined for business intelligence services, or across the enterprise; ■ Have limited agreements and metrics for which they are accountable to either end customers or other groups within DTMB; ■ Ability to accurately calculate those metrics is limited; ■ Little means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Business intelligence service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups partially believe to be accurate; ■ Business intelligence function is partially able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction; ■ Service levels to support chargeback and other financial allocation mechanisms exist but are not fully mature.	**Business intelligence service-level agreements and metrics are established, and the IT support organization is managing to agreed-upon service levels. Common attributes include:** ■ Service-level agreements and metrics for which they are accountable to end customers and other groups within DTMB, benchmarked against peers; ■ Ability to accurately calculate metrics that end customers and other DTMB groups mostly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Ability to work toward improving actual delivery to current service-level agreements, but not toward increasing those service levels in the future; ■ Service levels to support chargeback and other financial allocation mechanisms exist.	**Business intelligence service-level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Business intelligence service levels tied to business performance outcome metrics; ■ Ability to accurately calculate business intelligence metrics that end customers and other DTMB groups truly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Means of continuously improving to achieve better levels of customer satisfaction and to increase those service levels in the future; ■ Best-practice chargeback and other financial allocation mechanisms are in place to deliver cost-effective and high-quality services.

Business Intelligence and Performance Management

Current State Service Level Assessment Rationale

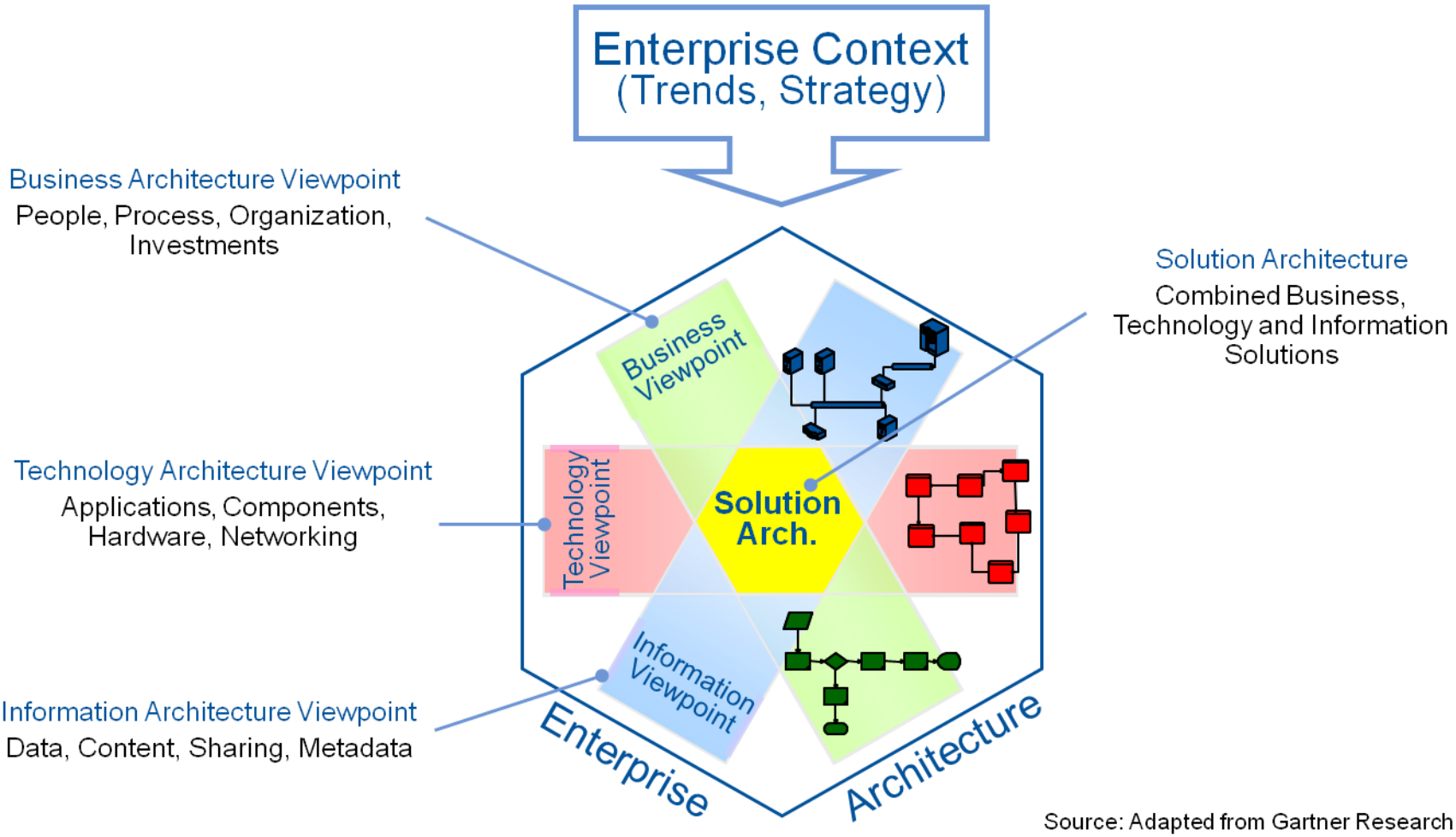
Strengths	Weaknesses
■ Meetings are occurring once per month to evaluate utilization metrics. ■ DTMB teams are ensuring that batch loads are completed successfully on a daily basis.	■ Metrics around performance from the end user's perspective are currently not being tracked. ■ No user satisfaction metrics are being tracked to understand how well the currently available data are satisfying the end users' needs for the information and knowledge they need to deliver on their respective agencies' strategic goals and objectives.

Current State Assessment and Maturity Analysis

Enterprise Architecture

Enterprise Architecture

Gartner Framework — EA Is Made Up of These…



Source: Adapted from Gartner Research

Gartner

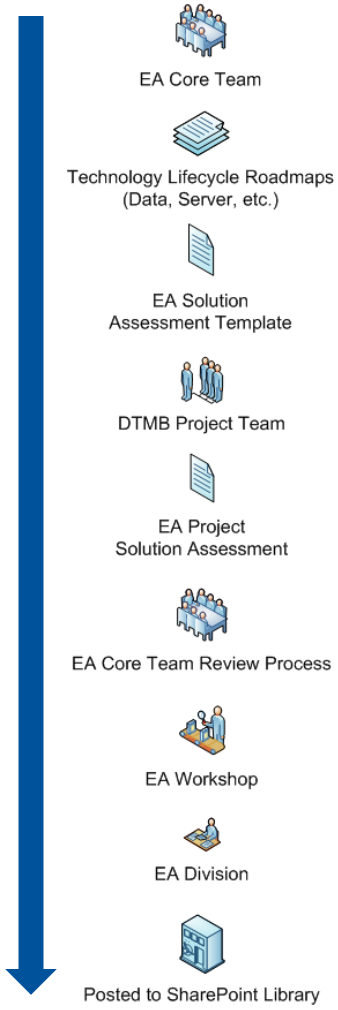
Enterprise Architecture

Current State Overview

- EA in DTMB is managed by a chief architect, who is a direct report to the head of Infrastructure Services.
- EA consists of two teams/components:
  - The EA Division, which sets and manages the technical standards and facilitates the EA process across DTMB (workshops, EA planning, specialized projects)
  - The EA Core Group, which consists of 40–45 members from across DTMB. The goal of the EA Core Group is:
    - Be an advocate for architecture practices and help grow the EA discipline in DTMB
    - Monitor and update technology life cycle road maps every six to eight months
    - Provide subject matter expertise in conducting EA technical standards compliance reviews and providing input to technical architecture for DTMB project submissions.
  - Core Team members are expected to be SMEs in their field and act as ambassadors for both EA and their respective department/Agency.
- EA has a SharePoint site which acts as a central repository for all EA-related documents and standards.
- EA is integrated into the SUITE methodology, and all projects are required to obtain EA compliance approval prior to deploying new technologies into their environments.

Enterprise Architecture

Current State Overview (continued)



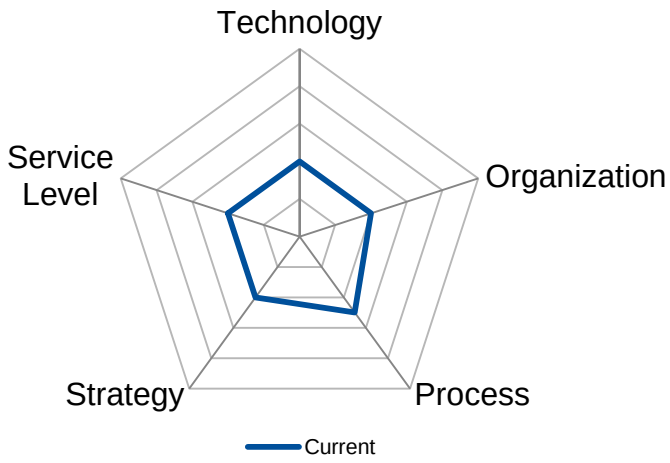
- EA process begins with the EA core team submissions.
- EA Core Team operates a technical domain workgroup that repeatedly refreshes the technology life cycle road maps for various technologies.
- EA Solution Assessment Templates are created based off the current version of the Technology Life Cycle Road Map.
- DTMB project teams (i.e., a PM in Agency Services working on a project) uses the template to create an EA project solution assessment.
- The EA Core Team reviews the Project Assessment.
  - If necessary, an EA workshop is conducted to create a workable solution within the standards set by the domain workgroup and published in the technology life cycle road maps.
- EA Division conducts EA workshops to help customers with solution design and problem resolution.
- The project assessment is reviewed for completeness by the EA Division, composed of the members of the EA department.
- The EA Division validates the Project Solution for completeness and publishes it to the SharePoint Library.

State of Michigan Current State Overview

Enterprise Architecture Major Findings

- **DTMB has a dedicated EA Division and a core team that is responsible for managing EA functions. This team is integrated into the SDLC process and manages compliance to EA technical standards.**
  - Bottom Line: Current model ensures changes to the environment are following technical standards.
- **Overall, EA is immature as a discipline at DTMB, primarily driven by organization positioning as well as staffing levels.**
  - Bottom Line: EA's scope and value is impacted.
- **EA is viewed as a burdensome process focused on technical compliance. Key EA domains of Business Architecture, Information/Data Architecture, Integration Architecture and Solution Architecture are not managed at this time.**
  - Bottom Line: Not managing key EA functions is an area of high risk, especially considering the federated nature of the Agencies and the type of project workload (upgrades, legacy migrations, development, integration to third-party and public domains) as well as an area of discontentment from customers (Solution Architecture).
- **A systematic process to proactively incorporate new standards and products for innovation/new trends (agility to adopt new technology) is no longer in use.**

  Bottom Line: Lack of formal process to introduce (with defined road maps) IT trend/market innovation hampers the DTMB organization.



Enterprise Architecture

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited IT systems or tools in place to support enterprise architecture, including tools such as: ■ Basic tools such as Word, Visio and PowerPoint (or equivalents) used to document EA; ■ Collaboration tools; ■ Specialized EA tools; ■ Integrated solutions (EA tools integrated with related tools such as CMDB, BPM).	**IT systems and tools are presently in place to support enterprise architecture, including tools such as those listed below. However, no or limited coordination or standardization across the enterprise.** ■ Basic tools such as Word, Visio and PowerPoint (or equivalents) used to document EA; ■ Collaboration tools; ■ Specialized EA tools. ■ Integrated solutions (EA tools integrated with related tools such as EA portals, CMDB, BPM).	**IT systems and tools are in place to support enterprise architecture, including tools such as those listed below. Inconsistent usage of tools (e.g., planning only, large projects, etc.).** ■ Basic tools such as Word, Visio and PowerPoint (or equivalents) used to document EA; ■ Collaboration tools; ■ Specialized EA tools; ■ Integrated solutions (EA tools integrated with related tools such as EA portals, CMDB, BPM).	**IT tools and systems are in place to support enterprise architecture across the enterprise and are consistently used, including tools such as those listed below.** ■ Basic tools such as Word, Visio and PowerPoint (or equivalents) used to document EA; ■ Collaboration tools; ■ Specialized EA tools; ■ Integrated solutions (EA tools integrated with related tools such as CMDB, BPM).	**IT systems and tools are in place to proactively integrate enterprise architecture and support the enterprise's ability to improve and optimize operational performance using tools such as:** ■ Basic tools such as Word, Visio and PowerPoint (or equivalents) used to document EA; ■ Collaboration tools; ■ Specialized EA tools; ■ Integrated solutions (EA tools integrated with related tools such as EA portals, CMDB, BPM).

Enterprise Architecture

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ The Enterprise Architecture team is using a shared central repository for hosting all EA-related artifacts and documents. – Repository leverages SharePoint and is available through the DTMB intranet. ■ EA artifacts have been built internally using SharePoint and MS Office documents for ease of use and sharing across DTMB.	■ No EA tool is being leveraged; the EA tools being used are self-built (SharePoint and MS Office documents). – User feedback indicated tools were difficult to leverage and use for research and EA submissions. ■ EA content is manually updated and maintained. ■ Email/SharePoint is the primary tool used to communicate during the EA process review for 40+ people. ■ With many areas to manage and coordinate, lack of automation and tooling make it difficult for both the EA division and the customers to utilize the repository effectively.

Enterprise Architecture

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of EA responsibilities for enterprise. Common attributes include: ■ EA not valued within the organization; ■ No dedicated resources for enterprise architecture as their primary responsibility; ■ No or low EA accountability at both the project and ongoing operations levels; ■ No or extremely limited EA training or certifications present; ■ Low skill sets; ■ Undefined roles and responsibilities.	**Ownership of EA responsibilities within the enterprise exists, but the organization is immature and some of the appropriate skill sets are not present. Common attributes include:** ■ General understanding of importance of EA, but largely viewed as project and operational "overhead;" ■ Organizational structure is defined but it is not aligned for effective service delivery; ■ Ad hoc EA "policing" of adherence to standards; ■ Missing key organization functions/roles; ■ One or a few dedicated resources for enterprise architecture as their primary responsibility; ■ Low EA accountability at both the project and ongoing operations levels, often only for major projects/initiatives; ■ Limited EA training or certifications present.	**EA organizational structure defined and fairly mature, and exhibits some best practices. Skill sets largely align with EA needs and training, and certifications are present. Common attributes include:** ■ EA valued and partially integrated into program/project and operational organizational structure; ■ Single organization unit "owns" EA; ■ Organizational structure is defined and aligned for effective service delivery; ■ Alignment of resources by roles and skills; ■ Appropriate number of dedicated resources for enterprise architecture as their primary responsibility; ■ Working to adopt best practices; ■ Some competency centers established; ■ Defined senior-level governance structure and charters; ■ Basic, but effective, staff development, training and certification programs in place.	**EA organizational structure defined and aligned for effective service delivery and enforcement with appropriately resourced and skilled staff. Common attributes include:** ■ EA valued and completely integrated into program/project and operational organizational structure; ■ Organizational structure is defined and aligned for effective service delivery, with appropriately resourced and skilled staff; ■ Subject matter experts recruited temporarily into EA virtual teams to participate in development; ■ Established program for ongoing training of resources and resource development; ■ Service-delivery-focused organization with strong relationship managers and service line; ■ Trusted service provider and demonstrated value to business; ■ Metrics-driven performance management; ■ Detailed role definition.	**EA organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes include:** ■ EA sits at executive level and is an integral part of corporate culture; ■ Organizational structure integrated with business and focused on business outcomes; ■ Business/IT Staff rotation; ■ Developing best practices; ■ Focused staff development and training competency centers; ■ Business-driven metrics and resourcing.

Enterprise Architecture

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ A dedicated EA Program office is in place that manages EA offerings across DTMB; the program office is called the EA Division. ■ The EA Division is headed by a dedicated Chief Architect. ■ The EA Division leverages a group of DTMB resources in the form of an EA Core team. – The EA Core team is a federated EA architect community that provides EA governance, policy and technical expertise to EA offerings, EA Standards and EA submissions. ■ Few agencies have dedicated EA specialists who are responsible for driving the EA efforts and Solution Architecture efforts at an agency level. – However, this type of dedicated resourcing is very limited across the agencies and is constrained by lack of coordination with the EA Division, as well as scope of architect services provided.	■ A true Chief Technology Officer (CTO) function that drives innovation, technology adoption and technology standardization that works with the EA division does not exist. ■ The EA Division reports into the Infrastructure Services Director and not the CIO/CTO. ■ EA Division has little integration with capital planning efforts (apart from input to Call for Projects list). ■ EA Division has limited staffing that is not enough to cover the scope and breadth of EA needs and requirements across the DTMB agencies and the associated projects/programs. ■ A governance process that manages EA across DTMB to set priorities, direction, issue resolution, planning and authority does not exist. ■ Unclear on the ownership and roles and responsibilities of EA functions between Agency Services, EA Division (and the EA core team) and Shared Solutions.

Enterprise Architecture

Current State Organization Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Communication planning or a formal communication office is not in place. – Little or no formal communication from EA Division to CSDs, project managers, developers, etc. – Value of EA and impacts of proper EA initiatives were not identified. – Agency services have different view of what EA should offer; EA Division has different view of what can realistically be offered. ■ Formally defined Architecture roles do not exist in the majority of agencies. ■ The EA core group is the foundation for maintaining and managing standards across DTMB. However, this group is volunteer in nature. ■ Little to no EA training is available for existing architects and Agency services. ■ In the Job Skills Inventory, less than 30% of staff in the Architecture job family rated themselves as qualified or highly qualified. ■ EA is viewed as a policing service and not a strategic service. ■ Resource issue (staffing levels) and misalignment of organization functions impacts the adoption of supporting new technologies. ■ EA process cannot quantify its value to DTMB.

Current Capabilities by Job Family

Current State Organization Assessment Rationale — Capabilities by Architecture Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Architecture	3	6	22	31	29%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Data and Information Architecture	38.7%
Enterprise Architecture and Strategic Planning	41.9%
Governance	25.8%
IT Trends & Directions	41.9%
Network Architecture	35.5%
Product and Vendor Evaluation	35.5%
Security Architecture	29.0%
Solution Architecture	41.9%
Standards, Procedures and Policies	45.2%
Technical Architecture	58.1%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Building Partnerships	25.8%	51.6%	22.6%
Change Advocate	32.3%	38.7%	29.0%
Consulting	22.6%	48.4%	29.0%
Innovation	25.8%	35.5%	38.7%
Strategic Planning	41.9%	45.2%	12.9%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	21
Qualified	71
HQ+Q	92

Gartner

Enterprise Architecture

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Processes to support enterprise architecture are non-existent, or ad hoc. Common attributes include: ■ Absence of EA processes, with some adherence to informal or nascent standards; ■ Completely ad hoc processes that are not documented, standardized, measured or continuously improved.	**Processes to support enterprise architecture are largely documented; formal processes are nascent and focused on policing and compliance. Common attributes include:** ■ Nascent or partial enterprise architecture principles and standards been created, delivered, approved and/or communicated to the organization; ■ Limited gating and review processes are in place to ensure that EA Strategy is enforced; ■ Processes are neither well defined nor repeatable; ■ Some or most processes documented; ■ Processes are not standardized or measured, and there is no method for improvement.	**Processes to support enterprise architecture are standardized and are consistently applied to the organization. Common attributes include:** ■ Enterprise architecture principles and standards been created, delivered, approved and/or communicated to the organization; ■ Formal gating and review processes are in place to ensure that EA Strategy is enforced; ■ Business unit management, infrastructure, applications project management and operations have involvement in EA program for the enterprise; ■ Defined process for handling architectural exceptions; ■ Highly valuable subset of EA deliverables been identified, prioritized and scheduled for development.	**Processes to support enterprise architecture are well defined and managed consistently across the enterprise. Common attributes include:** ■ Enterprise architecture principles and standards are periodically revisited and align with best practices; ■ Formal gating and review processes are an enterprise priority to ensure that EA Strategy is enforced; ■ Senior management have involvement in EA program for the enterprise; ■ Business unit management, infrastructure, applications project management and operations have consistent, coordinated involvement in EA program for the enterprise; ■ EA refreshed annually; ■ Ad hoc, or partially planned EA communication activities; ■ Highly valuable subset of EA deliverables developed and utilized; ■ Mechanisms are in place across the enterprise to ensure EA compliance.	**Processes to support enterprise architecture are mature and efficient. Common attributes include:** ■ Enterprise architecture principles and standards are continuously revisited and contribute to definition of best practices; ■ Formal gating and review processes are valued by business to ensure that EA Strategy is enforced; ■ EA aligned with business objectives and metrics; ■ EA integrated with all other key process areas; ■ Formally planned EA communication activities; ■ EA refreshed at least annually or more frequently when out-of-cycle changes occur; ■ Highly valuable subset of EA deliverables optimized with business input.

Enterprise Architecture

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Defined process for engaging EA, primarily for compliance purposes on projects. – Despite the federated nature of Agency Services, EA compliance and approvals are mandatory, which enables some level of control over technical direction and technical standards. EA is linked into the traditional SDLC via mandatory compliance approvals needed at specific steps. ■ EA workshops are offered to help the federated application development teams come to terms with utilizing new technology or EA artifacts and assist with solution design efforts. ■ Starting to engage in demand management and capital planning via the Call for Projects process. ■ Comprehensive documentation of technical standards exist in the central repository. These technical standards cover technical pattern examples, technical domains, technical reference models and technical road maps (product road maps). ■ Exception management process is in place.	■ The EA Division is not aligned to nor does it leverage any specific industry EA methodology or EA framework. – The EA program has been designed internally and focuses on managing limited scope. ■ Overall, EA is viewed as a reporting and compliance management function and not as a mechanism for guiding solution design. – Process is viewed as a burden for policy compliance. Project teams engage with EA for approvals, but do not view EA as a partner. – EA suffers in “credibility” based on feedback from other areas of DTMB and from the agencies. ■ Due to project-based funding, EA is not integrated with IT strategic planning and capital planning activities. ■ While a road map of EA initiatives and priorities existed for 2007 to 2010, the EA road map and associated target-state definition for the current planning cycle (2011 to 2015) was not identified. – Target states may be in place, but at a program/project level in some Agencies (not all). EA Division does not have a broad DTMB target state defined and documented at this time.

Enterprise Architecture

Current State Process Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Federated architecture model does not have controls in place to coordinate architectural efforts across Agency Services, apart from compliance-based review cycles. ■ EA process documentation is at a high level from the EA Division. However, Agency Services do not have any requirement to document and maintain standard EA documentation and EA artifacts across their domains.

Enterprise Architecture

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined strategy or for enterprise architecture. Common attributes include: ■ EA does not have its own goals and objectives, and simply reacts to most-vocal or influential customers (either internal or external); ■ EA has no means of understanding whether or not it is aligned with DTMB's overall strategy; ■ No process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy.	**An enterprise architecture strategy exists, but it is not coordinated, not clearly defined, and does not have measurable objectives. Common attributes include:** ■ EA strategy does not fully integrate with the wider organization, nor is it communicated enterprisewide; ■ EA has its own goals and objectives, but there is no real consideration for aligning it with the overall DTMB strategy; ■ Some means of understanding whether or not it is optimizing to its own desired goals, but cannot determine if it is really working toward DTMB's overall strategy; ■ No or limited ability to ensure ongoing alignment with DTMB's overall strategy.	**The enterprise architecture strategy is defined and communicated; however, it is not consistently or effectively translated into action. Common attributes include:** ■ EA governance is inadequately established, allowing for the implementation of the strategy to become fragmented and confused across the enterprise; ■ EA has its own goals and objectives that partially align with DTMB's overall strategy; ■ Reactively determines how well they are aligned to DTMB's overall strategy; ■ Ineffective or nascent ability to ensure ongoing alignment with DTMB's overall strategy, or ability to take corrective action when it is getting out of alignment.	**The enterprise architecture strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ EA governance effectively used to articulate how architecture development decisions are made; ■ EA has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Adequate ability to ensure ongoing alignment with DTMB's overall strategy, or to take corrective action when it is getting out of alignment.	**Enterprise architecture is fully integrated with strategic planning, continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ EA governance fully and effectively integrated with business; ■ EA strategy is clearly defined and communicated throughout the enterprise; ■ The IT role has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Effective ability to ensure ongoing alignment with DTMB's overall strategy, and to take corrective action when it is getting out of alignment.

Enterprise Architecture

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ Prioritization of EA focus comes from Call for Projects, demand from individual agencies and organization (political) directives. ■ Some governance and senior management involvement is in place. ■ Starting to evaluate technologies and standards that will help across different customers across the agencies. ■ Maintain a list of EA “To-Do’s” for EA projects and innovation. ■ Stated goals listed in ICT Strategic Plan 2010–2014.	■ Overall, EA at DTMB is primarily limited to technical architecture and standards. ■ Business Architecture is not in scope of EA coverage, or it is done individually by each agency. ■ Information/Data Architecture is not in scope of EA at this time. Lower-level data architecture is probably being done at each agency or rather at each project level. Although a Chief Data Officer role was identified, this role is outside of the EA Division and no enterprise standards, initiatives or EA artifacts for managing information/data architecture were identified. – A common ETL solution is in the initial stages of being rolled out by Enterprise Solutions. ■ Security architecture is maintained and managed by a separate team. ■ Solution architecture is missing — this has been pointed out as one of the biggest pain points from Agency Services. Agency Services generally do not have solution/cross-application architects embedded in their teams either. ■ A long-term strategy of EA future state and the associated migration plan are not in place. ■ Business customers (agencies) are aware of EA; but do not perceive it to be relevant to their day-to-day operations.

Enterprise Architecture

Current State Strategy Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ EA function is not a stakeholder in the customer strategy process. ■ EA function is not integrated with other decision-making disciplines such as budgeting, project and program management, innovation management and cross-agency processes. ■ IT customers have differing understanding and expectations of the EA process; but their focus is on meeting EA compliance requirements. ■ A systematic process to identify IT trends or tracking market innovations that are capable of supporting DTMB architecture is not in place.

Enterprise Architecture

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
EA services are not clearly defined or negotiated with the customer. Common attributes include: ■ No service-level agreements or metrics for which they are accountable to either end customers or other groups within DTMB; ■ No means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**EA services are provided, but performance is not effectively measured. Common attributes include:** ■ No or few objectives or metrics are defined for EA services, or across the enterprise; ■ Have limited EA service-level agreements and metrics for which they are accountable to either end customers or other groups within DTMB; ■ Ability to accurately calculate those metrics is limited; ■ Little means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**EA service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups partially believe to be accurate; ■ EA is partially able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction; ■ Service levels to support chargeback and other financial allocation mechanisms exist, but are not fully mature.	**EA service-level agreements and metrics are established, and the IT support organization is managing to agreed-upon service levels. Common attributes include:** ■ EA service-level agreements, and metrics for which they are accountable to end customers and other groups within DTMB, are benchmarked against peers; ■ Ability to accurately calculate metrics that end customers and other DTMB groups mostly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Ability to work toward improving actual delivery to current service-level agreements, but not toward increasing those service levels in the future; ■ Service levels to support chargeback and other financial allocation mechanisms exist.	**EA service-level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups truly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Means of continuously improving to achieve better levels of customer satisfaction and to increase those service levels in the future; ■ Best-practice chargeback and other financial allocation mechanisms are in place to deliver cost-effective and high-quality services.

Enterprise Architecture

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ Service levels are based on compliance reviews of EA submissions. ■ EA Division collects and tracks metrics for the EA compliance review process (historic and current).	■ No metrics around the following area that are traditionally measured by EA: – Basic financial measures – Productivity/efficiency measures – Quality/effectiveness – Delivery process. ■ No process is in place to identify and communicate EA success stories.

Current State Assessment and Maturity Analysis

Infrastructure and Operations

Current State = ○

Target State = ▲

Infrastructure and Operations

Current State Overview

- DTMB manages a large-size infrastructure that spans across 800+ offices and provides connectivity to approximately 69,000 end users. The DTMB core infrastructure is managed by Infrastructure Services (IS), which manages:
  - Total of 798 Unix OSs on 659 physical servers
  - Total of 3,061 Wintel OS count on 2,273 physical servers
    - Technical Services: 2,159 Wintel OSs on 1,371 physical servers (approximately 36% virtualized)
    - Office Automation: 902 physical servers (no virtualization)
  - Small mainframe environment with 285 MIPS installed
  - Total centralized storage of 5.4PB with approximately 3PB being online storage (~1.5PB is utilized) and 2.5PB reserved for backup and archive process
  - Approximately 113,000 active ports
  - Approximately 80,000 devices supported on the WAN
  - One primary data center (Tier 3), one DR data center and one test/development data center
    - Total usable space is ~30,000 sq. ft.
- The majority of the DTMB infrastructure is centrally hosted and managed out of Lansing, Michigan.

Infrastructure and Operations

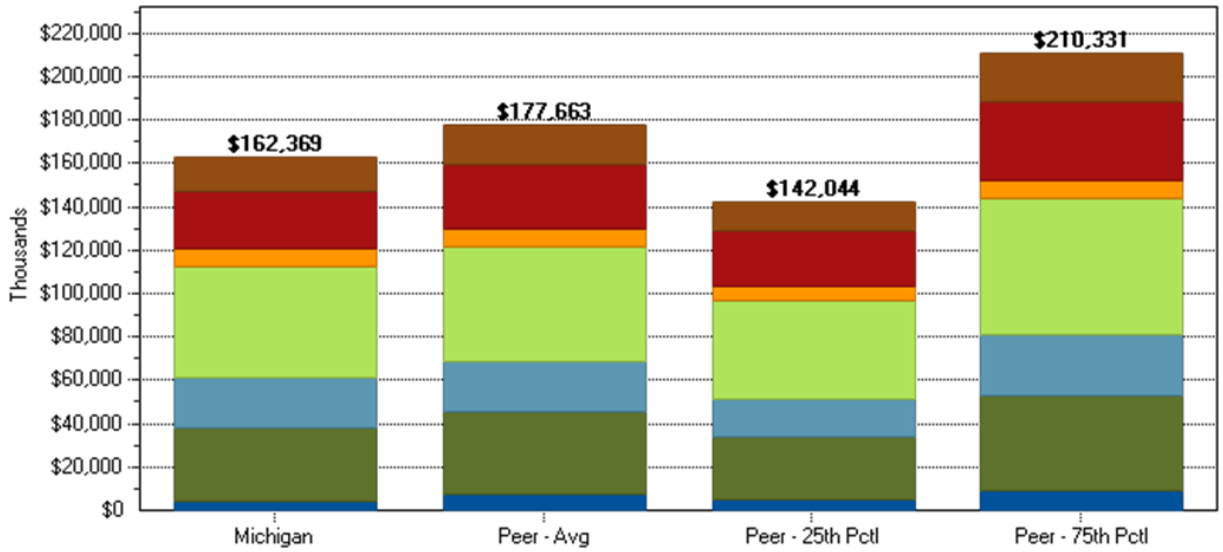
Current State Overview (continued)

- The infrastructure environment is managed by a centralized group of approximately 616 FTEs (organic and contractor) who are organized into the following technical domain teams:
  - Program Management
  - Technical Service
  - Telecommunications
  - Data Center Services
  - Enterprise Architecture
  - Office Automation Services.
- IS provides core infrastructure services through a standardized service catalog process that is backed up with a chargeback mechanism to its customers.
- IS runs and manages all the standard data center processes such as incident management, change management, configuration management, problem management and event monitoring across the infrastructure.

Infrastructure and Operations

Current State Overview — Benchmarking Results

- The State of Michigan spends $15M less than the peer group average. Spending is lower than the peer group in all functional areas.

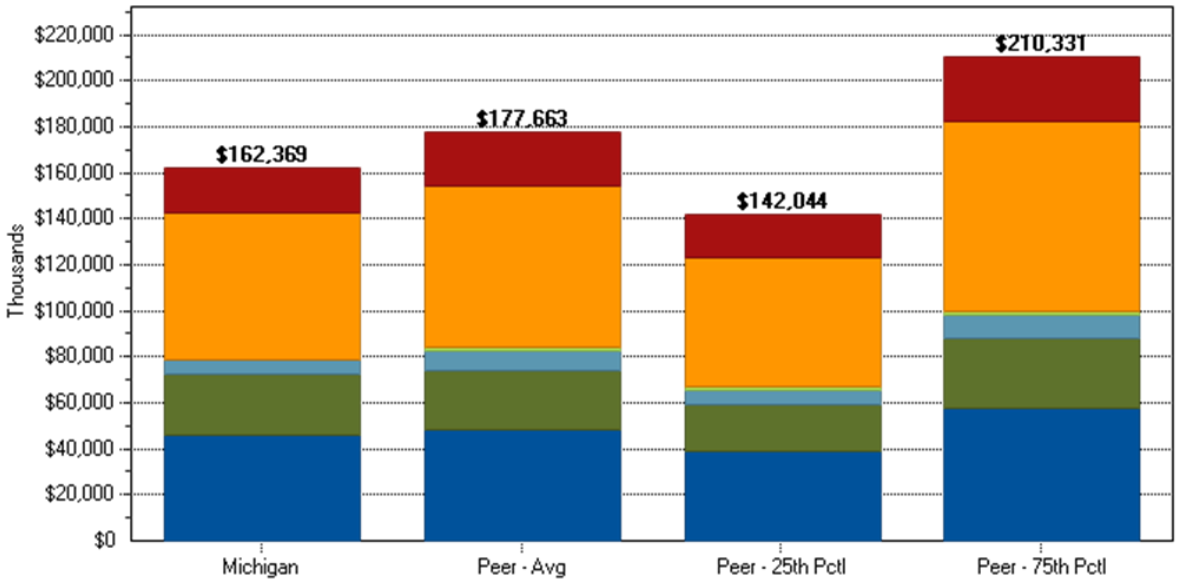


	Michigan	Peer - Avg	Peer - 25th Pctl	Peer - 75th Pctl
Mainframe	$4,487	$7,084	$4,580	$8,850
Servers - Unix and Wintel	$33,740	$38,169	$28,931	$43,814
Storage	$22,657	$23,507	$18,078	$28,242
Client & Peripherals	$51,384	$52,838	$44,910	$62,593
IT Help Desk	$8,196	$8,244	$7,052	$8,888
Data Networking	$26,300	$29,255	$25,210	$35,645
Voice Telecom	$15,604	$18,566	$13,283	$22,300

Infrastructure and Operations

Current State Overview — Benchmarking Results (continued)

- The IT spend by cost category reveals that Michigan spends more than the peer group average in the software category, but has lower spending in hardware, personnel, transmission and occupancy.

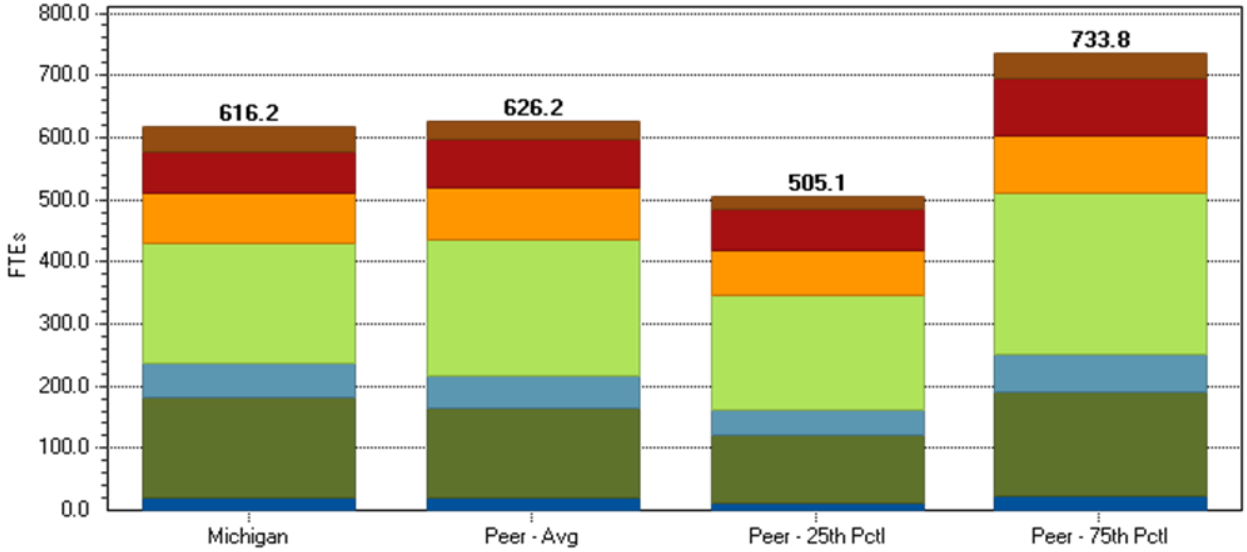


	Michigan	Peer - Avg	Peer - 25th Pctl	Peer - 75th Pctl
Hardware	$45,733	$48,594	$39,258	$57,838
Software	$26,413	$25,400	$19,859	$30,224
Occupancy	$6,397	$8,430	$6,517	$9,921
Disaster Recovery	$0	$1,548	$1,180	$1,847
Personnel	$64,159	$70,190	$56,418	$82,512
Transmission	$19,667	$23,500	$18,812	$27,989

Infrastructure and Operations

Current State Overview — Benchmarking Results (continued)

- Total staffing is lower than the peer group, with Michigan at 616 and the peer group at 626.
  - Michigan utilizes fewer FTEs in some areas, for example Client and Peripheral, Unix and Data Networking, but more FTEs than the peer group in Wintel and Voice.

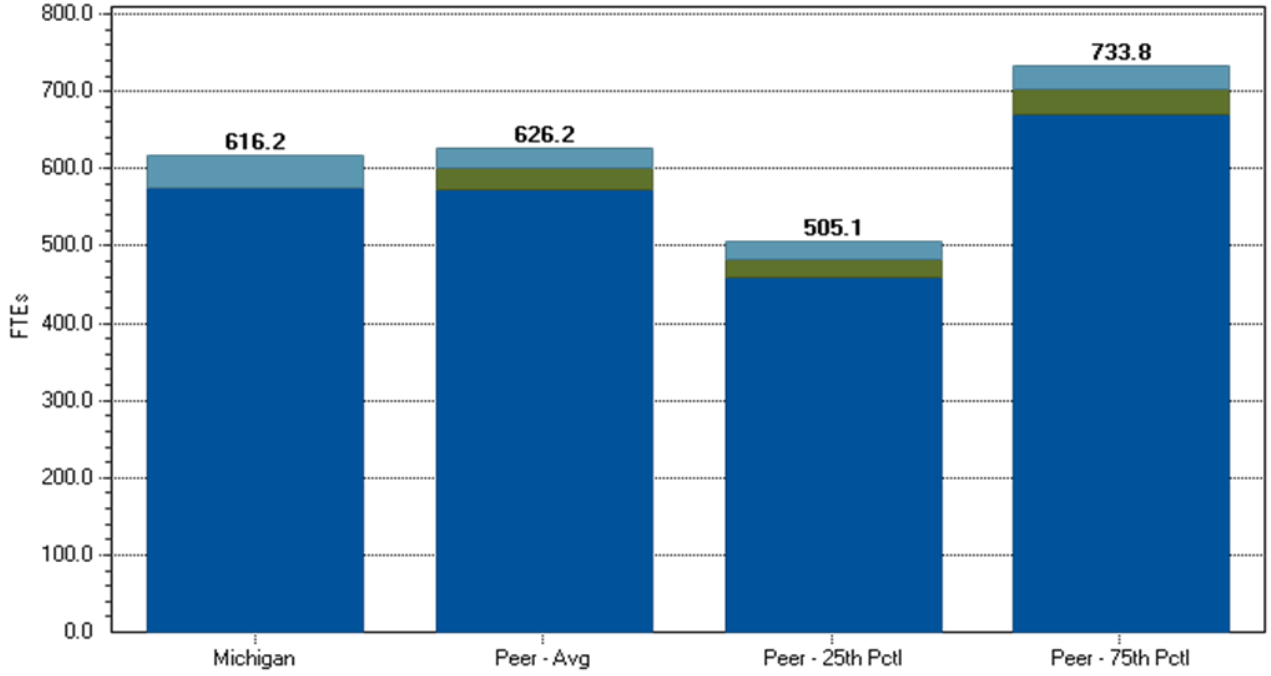


	Michigan	Peer - Avg	Peer - 25th Pctl	Peer - 75th Pctl
Mainframe	20.2	19.2	12.4	24.0
Servers - Unix and Wintel	160.8	144.8	108.3	165.8
Storage	56.2	51.3	39.4	61.6
Client & Peripheral	191.8	219.5	186.6	260.0
IT Help Desk	81.5	84.6	72.4	91.2
Data Networking	65.6	76.5	65.7	93.2
Voice Telecom	40.2	30.3	20.3	38.0

Infrastructure and Operations

Current State Overview — Benchmarking Results (continued)

- Michigan and the peer group utilize a similar number of external staff resources. Michigan utilizes more contractors than the peer group, at 40 vs. 26.4, but the peer group uses more outsourcing, with 28 FTEs.

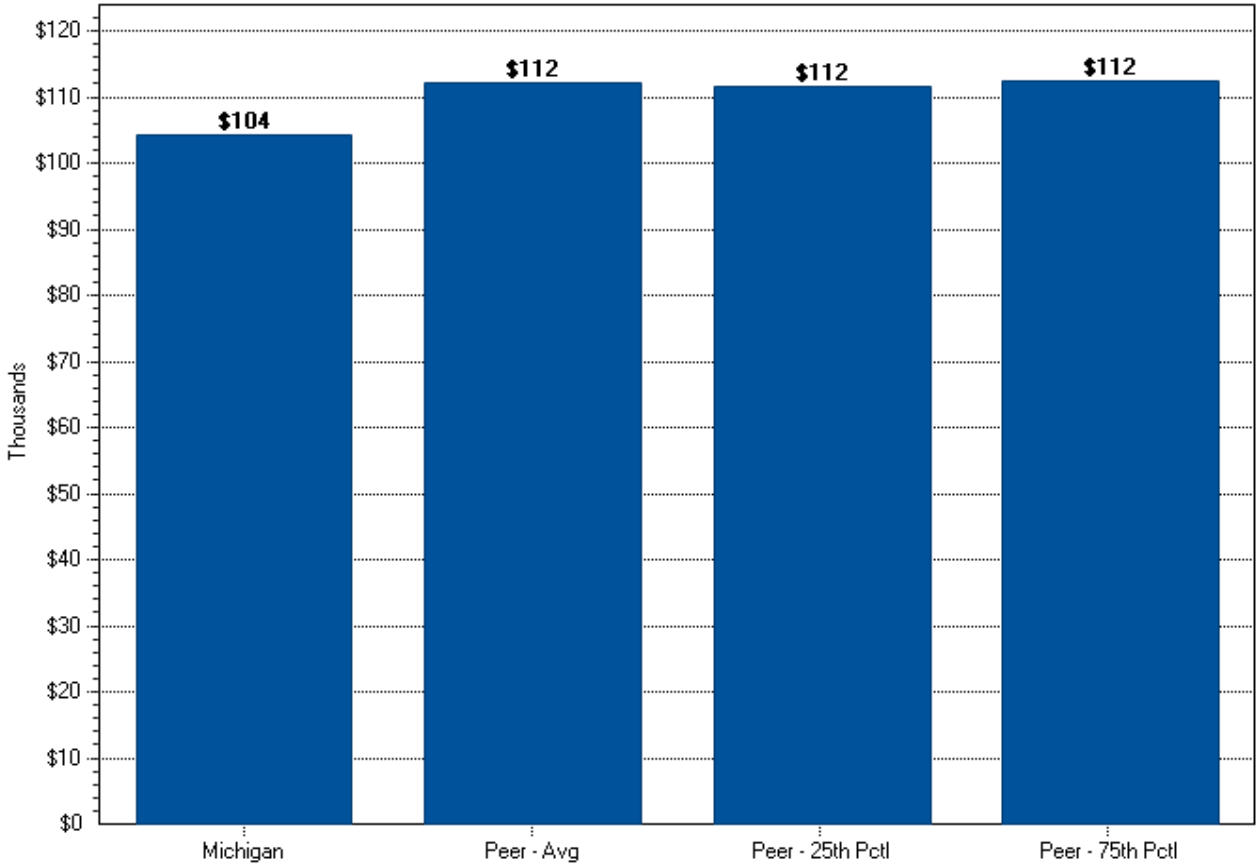


	Michigan	Peer - Avg	Peer - 25th Pctl	Peer - 75th Pctl
Insourced	575.3	571.8	459.4	670.5
Outsource Equivalent	0.9	28.0	23.7	32.7
Contractor	40.0	26.4	22.0	30.6

Infrastructure and Operations

Current State Overview — Benchmarking Results (continued)

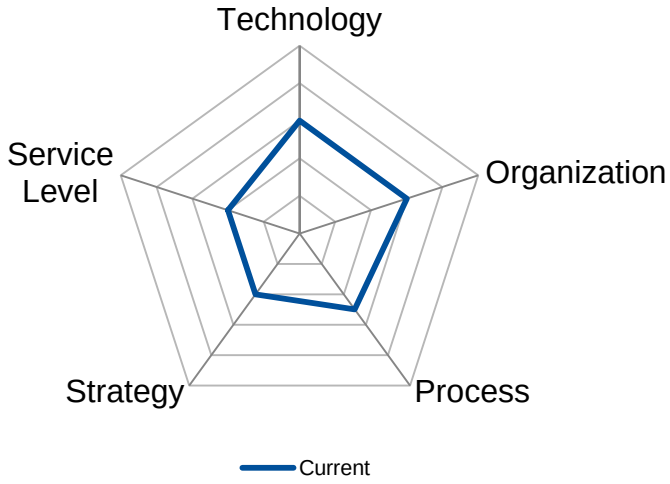
- The cost per FTE is lower at Michigan compared to the peer group, but the per-capita spending on contractors is generally higher at Michigan, with the exception of the Help Desk and Storage.



Infrastructure and Operations

Major Findings

- **DTMB has good standardization with regard to mainstream technology platforms across the major infrastructure domains.**
  - Bottom Line: Good tools and architecture make it easier to manage the infrastructure environment.
- **Infrastructure Services is a consolidated and centralized IT infrastructure organization that is working on adopting and implementing industry-leading trends.**
  - Bottom Line: Consolidation and centralization lead to optimization and standardization. The efficiencies from consolidation have resulted in a benchmark that places the State of Michigan better than the peer average for I&O costs.



- **Overall, I&O maturity is high, but is hampered from the alignment by technology platform. Each technology platform has a unique service catalog.**
  - Bottom Line: Strong technology alignment and multiple service catalogs make it more difficult to work collaboratively across Infrastructure Services in a coordinated and organized manner.
- **Lack of a consistent customer-facing approach (metrics, service catalogs, processes, operations, management, cost management) limits the ability of Infrastructure Services to be truly regarded as an integrated business partner. Feedback indicates SLAs are not aligned with customer expectations.**
  - Bottom Line: Infrastructure and operations should have operating level agreements (OLAs) with other DTMB functions to improve customer service.
- **Overall, there is a limited automation and integration in Infrastructure management.**
  - Bottom Line: With limited automation and multiple delivery teams, IT process and staffing efficiencies are impacted.

Infrastructure and Operation

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Data centers are not appropriately located or provisioned. No tools are implemented in the following areas:	**Tools are inconsistently implemented for each agency in some of the following areas:**	**Tools are inconsistently implemented for all agencies in all the following areas:**	**A standard set of tools is consistently implemented for all agencies in all the following areas:**	**A standard set of tools is consistently implemented for all agencies in all the following areas, and DTMB continually looks to improve this toolset:**
■ Infrastructure support ■ Network (WAN, LAN and telephony) ■ Data center ■ Change tracking ■ Service desk tools (e.g., incident management, ticket tracking, problem management) ■ Event correlation analysis ■ Element management ■ Patch management ■ Capacity management ■ Operations management ■ Discovery ■ Topology ■ Status monitoring ■ Fault management ■ IT asset management	■ Infrastructure support ■ Network (WAN, LAN and telephony) ■ Data center ■ Change tracking ■ Service desk tools (e.g., incident management, ticket tracking, problem management) ■ Event correlation analysis ■ Element management ■ Patch management ■ Capacity management ■ Operations management ■ Discovery ■ Topology ■ Status monitoring ■ Fault management ■ IT asset management	■ Infrastructure support ■ Network (WAN, LAN and telephony) ■ Data center ■ Change tracking ■ Service desk tools (e.g., incident management, ticket tracking, problem management) ■ Event correlation analysis ■ Element management ■ Patch management ■ Capacity management ■ Operations management ■ Discovery ■ Topology ■ Status monitoring ■ Fault management ■ IT asset management	■ Infrastructure support ■ Network (WAN, LAN and telephony) ■ Data center ■ Change tracking ■ Service desk tools (e.g., incident management, ticket tracking, problem management) ■ Event correlation analysis ■ Element management ■ Patch management ■ Capacity management ■ Operations management ■ Discovery ■ Topology ■ Status monitoring ■ Fault management ■ IT asset management	■ Infrastructure support ■ Network (WAN, LAN and telephony) ■ Data center ■ Change tracking ■ Service desk tools (e.g., incident management, ticket tracking, problem management) ■ Event correlation analysis ■ Element management ■ Patch management ■ Capacity management ■ Operations management ■ Discovery ■ Topology ■ Status monitoring ■ Fault management ■ IT asset management

Infrastructure and Operations

Current State Technology Assessment Rationale

Strengths

- Overall, Infrastructure Services has adopted or is in the process of adopting industry-leading practices and tools.
- The architecture of the overall infrastructure solution appears reasonably mature.
- DTMB has good standardization with regard to mainstream technology platforms across the major infrastructure domains (i.e., Servers, Storage, Network, DR). Many mainstream and leading-practice tools exist to support these platforms.
- For the most part, Infrastructure Services is tooled in the major key areas.
- Have tools in place for:
  - Virtualization
  - Server and network monitoring
  - Server administration
  - Software distribution
  - Core data center processes (help desk, Incident, change, configuration, asset)
  - Network management
  - Storage resource management
  - Disaster recovery management.

Weaknesses

- Currently, Infrastructure Services has a low virtualization rate; many other organizations are 50% to 75%+ range in virtualization.
- Linux adoption has been low when compared to other organizations. Linux is primarily a focus on the x86 side (virtualized with free SUSE template) and not being looked at as a potential Unix replacement.
- Automation in customer-facing or customer impact areas is missing in some areas, e.g., provisioning, imaging, run book automation.
  - With limited automation (run book automation-type tool), and multiple delivery teams, IT process and staffing efficiencies are impacted.
- The tiering structure for storage is missing a traditional Tier 2. Currently using Tier 2 in SATA whereas most organizations utilize midrange Tier 2 storage and SATA for true Tier 3/4.
  - Possibly over-engineering storage provisioning compared to requirements.
- Although capacity exists in primary production facility, other two data centers are nearing capacity. These data center capacity issues will need to be resolved in order to provide adequate hosting and recovery capability:
  - Lake Ontario needs investment in MEP refresh
  - Traverse Bay is at physical and electrical capacity

Infrastructure and Operations

Current State Technology Assessment Rationale (continued)

Strengths (continued)

- Network (WAN) is primarily outsourced to ATT, and LANs follow standard deployment pattern.
  - Working on provisioning fiber at key SOM installations.
  - Working proactively with ATT to manage WAN configuration, capacity and quality.
- DTMB is moving along the virtualization path with a sound approach and appropriate virtual tool stack.
- DTMB is using an industry-leading Disaster Recovery Management tool to help manage the DR process and enable application teams to develop and manage the DR plans.
- A standard refresh process with additional third-party warranty exists.
- DTMB has only a handful of select vendors in the IT hardware space.
- Mission-critical applications have been identified, and DR plans are in process for the majority of the application.
- Overall DTMB has a good standardized core infrastructure that utilized enterprise-class tools. This results in more-efficient support and easier management.

Weaknesses (continued)

- DR capability is in the same geographic location (same city environment).
- The monitoring solution in place is adequate, but is essentially element-level monitoring for core infrastructure that is limited to up/down status. Performance management tool (Vantage) is available but being selectively used (by Applications group) or being used reactively to diagnose issues. Monitoring does not provide comprehensive analysis tools for performance monitoring or event co-relation.
  - Ability to manage/monitor network performance at local sites is limited.
- A true NOC for managing the network does not exist.

Infrastructure and Operations

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB does not have defined roles/responsibilities or enough adequately trained staff for the following activities: ■ Customer relationship management; ■ Service management; ■ Process management (e.g., change manager, capacity manager, incident manager, etc.); ■ Infrastructure support; ■ Platform/technical specialties; ■ I&O financial management.	**DTMB has inconsistently established roles and responsibilities for the following activities:** **DTMB has staff that has received some of the necessary training (but needs more training) to be adequately prepared for the following activities:** ■ Customer relationship management; ■ Service management; ■ Process management (e.g., change manager, capacity manager, incident manager, etc.); ■ Infrastructure support; ■ Platform/technical specialties; ■ I&O financial management.	**DTMB has consistently documented roles and responsibilities for the following activities:** **DTMB has adequately trained resources to manage resources but is understaffed, which limits its ability to perform the following activities:** ■ Customer relationship management; ■ Service management; ■ Process management (e.g., change manager, capacity manager, incident manager, etc.); ■ Infrastructure support; ■ Platform/technical specialties; ■ I&O financial management.	**DTMB has documented each role as responsible, accountable, consulted and informed for the following activities:** **DTMB has a sufficient number of adequately trained staff for the following activities:** ■ Customer relationship management; ■ Service management; ■ Process management (e.g., change manager, capacity manager, incident manager, etc.); ■ Infrastructure support; ■ Platform/technical specialties; ■ I&O financial management.	**DTMB has a defined sourcing strategy that evaluates the optimal distribution of insourced and outsourced resources; DTMB has optimized the number of adequately trained staff to manage resources across the enterprise for the following activities:** ■ Customer relationship management; ■ Service management; ■ Process management (e.g., change manager, capacity manager, incident manager, etc.); ■ Infrastructure support; ■ Platform/technical specialties; ■ I&O financial management.

Infrastructure and Operations

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ Infrastructure Services is a consolidated and centralized IT infrastructure organization. ■ Key areas of IT infrastructure management are staffed under a separate management structure: – Program Management – Field Services – Technical Service – Telecommunications – Data Center Services – Enterprise Architecture – Office Automation Services. ■ A Program Management Office (PMO) structure is in place for managing ongoing and new projects. The technology domain teams integrate with the PMO for infrastructure projects. PMO provides broad project management activities as well as coordination/management of customer interaction points with the Infrastructure Specialist role. ■ A business relationship function that acts as the liaison between the IT operations and the customers' units is in place. This group manages the communication and requirements between customers and IT operations (IO/CSD model). ■ Competency centers for key areas are in the process of being developed or are deployed (VCOE, Citrix, DRM, etc.).	■ Overall, the Infrastructure Services organization is aligned by technology platform, that in some cases are overlapping and duplicative. – Server management is distributed across three sub-server teams with its own engineering and operations functions. The teams are aligned by agency. – Connectivity server equipment is managed under a separate team. ■ Organization appears to be very hierarchical, with many teams responsible for different parts of the process. This leads to more-reactive (as opposed to more-proactive) operations when incidents/anomalies arise. – Server provisioning is managed by IT PMO team that has to interact with hosting, network, operations, security, vendors, helpdesk, Agency Services and procurement in order to provision a server. Any delay from one directly impacts server provisioning time. – No metric or enforcement function is in place that drives different teams to provision a server in a specific time frame. ■ Infrastructure availability and performance are siloed by technical tower. This results in an unclear escalation and accountability process for overall IS services. ■ IS utilizes a contracting strategy to have highly skilled contractors perform core engineering and operational functions, which increases overall cost of service.

Infrastructure and Operations

Current State Organization Assessment Rationale (continued)

Strengths (continued)	Weaknesses (continued)
■ Process owners are in place for key infrastructure service delivery processes. ■ Training budgets are in existence to train technical staff. ■ Career progression for staff development is in place. ■ Client technology, system administration and network management are three of the stronger job families from the skills inventory.	■ Infrastructure Services does not have any customer-facing role that liaisons with customers to understand their needs or pain points. This role/requirement is expected to be in place at the working level between the CSDs and the Infrastructure Specialists. ■ Utilizing inexperienced/undertrained resources for incident management and field services directly impacts Infrastructure Services' credibility and ability to resolve issues. ■ Separate Tier 3 organization (engineering level) that focuses primarily on project-oriented work, rather than day-to-day operations was not identified. Operations and engineering organizations are contained in sub-teams (server team, operations team, etc.) and are focused on their technical domain. ■ Owner of Risk Management is unclear: risk management is done only for IT systems. DC ops is responsible for managing the DRM process, but no enforcement or risk management activities under a risk manager were identified. Single owner of risk management was not identified who is accountable for the entire life cycle of IT risk management. ■ A role to independently measure and manage the SLA process for service delivery is not in place.

Infrastructure and Operations

Current State Organization Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Service delivery manager/IT Service product manager (or similar role) accountable for data center services delivery not in place; a centralized service delivery manager role would help enhance end-to-end system delivery focus, prioritization. – Function is supported by various tower owners (network, server-Unix, server-Windows, storage, facilities, Office Automation, Helpdesk) all with different budgets (and chargebacks) and different service catalogs. – Service performance/outage : • "If there's an issue…I have to resolve myself…I only get piecemeal answers from infrastructure, I have to assemble the network, server, storage, hosting, desktop teams to get them to figure out an issue" — interview quote ■ Customer Support/Helpdesk, Computer Operations and Business Continuance are among the weaker job families in the skills inventory.

Infrastructure and Operations

Current State Organization Assessment Rationale — Capabilities by Client Technology/Desktop Support Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Client Technology/Desktop Support	31	38	32	101	68%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Desktop Operating Systems	65.5%
Hardware Installation and Support	66.4%
Mobile Devise HW/SW Support	27.3%
PC/Workstation Hardware Architecture	39.1%
Performance Measurement and Tuning	17.3%
Product and Vendor Evaluation	11.8%
Project Management	15.5%
Quality Management	10.0%
Remote Computing	31.8%
Software Installation and Support	60.0%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	5.0%	11.9%	83.2%
Communications	3.0%	20.8%	76.2%
Contributing to Team Success	4.0%	13.9%	82.2%
Customer Focused	3.0%	9.9%	87.1%
Information Seeking	7.9%	17.8%	74.3%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	67
Qualified	144
HQ+Q	211

Infrastructure and Operations

Current State Organization Assessment Rationale — Capabilities by Computer Operations Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Computer Operations	1	12	46	59	22%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Contingency and Disaster Recovery	8.5%
Facilities Management	8.5%
Peripheral Equipment	5.1%
Production Control	8.5%
Production Scheduling	10.2%
Production Support and Documentation	20.3%
Security Policies and Procedures	5.1%
Standards, Procedures and Policies	16.9%
Systems Computer/Console Operations	28.8%
Workflow Automation	6.8%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	6.8%	30.5%	62.7%
Communications	10.2%	27.1%	62.7%
Contributing to Team Success	8.5%	22.0%	69.5%
Planning and Organizing Work	13.6%	40.7%	45.8%
Quality Orientation	16.9%	30.5%	52.5%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	34
Qualified	125
HQ+Q	159

Infrastructure and Operations

Current State Organization Assessment Rationale — Capabilities by Customer Support and Help Desk Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Customer Support/Help Desk	4	19	66	89	26%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Client Server Computing	10.1%
Contingency and Disaster Recovery	1.1%
Data Access and User Administration	16.9%
Enterprise Products/Services	3.4%
Network Administration	9.0%
Security Policies and Procedures	5.6%
Software Support	32.6%
Standards, Procedures and Policies	10.1%
Systems Help Desk Management	13.5%
Systems Security and User Administration	10.1%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Adaptability	3.4%	15.7%	80.9%
Communications	12.4%	24.7%	62.9%
Customer Focused	9.0%	11.2%	79.8%
Information Seeking	15.7%	21.3%	62.9%
Planning and Organizing Work	20.2%	23.6%	56.2%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	42
Qualified	122
HQ+Q	132

Current Capabilities by Job Family

Current State Organization Assessment Rationale — Capabilities by Network Management Job Family

- Job Family strength for FTEs currently in this job family:

Job Family	Highly Qualified	Qualified	Less-Qualified	Total HC	Strength (%HQ+Q)
Network Management	6	7	19	32	41%

- Selected foundational skills and critical competencies:

10 Foundational Skills (% of People with Adv/Master Proficieny)	*% Adv/Mst*
Network Architecture	28.1%
Network Capacity Planning	9.4%
Network Configuration and Implementation	40.6%
Network Design	34.4%
Network Diagnostics and Monitoring	34.4%
Network Installation	43.8%
Network Performance Tuning and Troubleshooting	34.4%
Network Security	25.0%
Remote Access	25.0%
Vendor Management	6.3%

Adv/Master>= 30% Adv/Master 20%–30% Adv/Master <20%

5 Critical Competencies	*2+ Levels Below Expected*	*1 Level Below Expected*	*At or Above Expected*
Analytical Thinking	3.1%	25.0%	71.9%
Communications	6.3%	37.5%	56.3%
Contributing to Team Success	9.4%	15.6%	75.0%
Information Seeking	6.3%	28.1%	65.6%
Quality Orientation	9.4%	34.4%	56.3%

At or Above 60% 40% to <60% Below <40%

- Bench strength (Highly Qualified and Qualified FTEs currently in other Job Families):

Highly Qualified	13
Qualified	62
HQ+Q	75

Infrastructure and Operations

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
I&O processes are non-existent, or ad hoc. Common attributes include: ■ Policies and automation do not extend across IT and business processes (i.e., risk assessment, IT service self-provisioning and IT dashboards); ■ Process integration and handoff points not in place between IT architecture, applications and I&O; ■ Applications and I&O are not integrated to make pre-production testing more rigorous; ■ Tools are not integrated at the data and functional level across processes; ■ Processes and standards are not clearly defined.	**I&O processes are largely documented, but with limited standardization, and are inconsistent from location to location, business unit to business unit. Common attributes include:** ■ Policies and automation inconsistently extend across IT and business processes (i.e., risk assessment, IT service self-provisioning and IT dashboards); ■ Process integration and handoff points informally in place between IT architecture, applications and I&O; ■ Applications and I&O are inconsistently integrated to make pre-production testing more rigorous; ■ Some tools are integrated at the data and functional level across a few of the processes; ■ DTMB has ad-hoc processes and standards.	**I&O processes are standardized and documented and are consistently applied to the organization. Common attributes include:** ■ Policies and automation consistently extend across IT and business processes (i.e., risk assessment, IT service self-provisioning and IT dashboards); ■ Process integration and handoff points are formally in place between IT architecture, applications and I&O; ■ Applications and I&O are consistently integrated to make pre-production testing more rigorous; ■ Tools are integrated at the data and functional level across the processes; ■ DTMB has formal processes and standards.	**I&O processes are well defined and managed consistently across the enterprise. Common attributes include:** ■ Policies and automation consistently extend across IT and business processes (i.e., risk assessment, IT service self-provisioning and IT dashboards); ■ Process integration and handoff points are formally in place between IT architecture, applications and I&O; ■ Applications and I&O are consistently integrated to make pre-production testing more rigorous; ■ Tools are integrated at the data and functional level across the processes; ■ DTMB has consistently defined and documented processes.	**I&O processes are mature and efficient. Common attribute, include:** ■ DTMB has a defined process to ensure that processes and standards are followed; ■ Policies and automation consistently extend across IT and business processes (i.e., risk assessment, IT service self-provisioning and IT dashboards); ■ Process integration and handoff points are formally in place between IT architecture, applications and I&O; ■ Applications and I&O are consistently integrated to make pre-production testing more rigorous; ■ Tools are integrated at the data and functional level across the processes.

Infrastructure and Operations

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Infrastructure Services is organized around technology platforms, but is also becoming process-centric, with dedicated functions being set up that are focused on key cross-platform processes. ■ DTMB has several foundational level processes in place, including: – Incident management – Change management – Configuration management – Asset management. ■ Currently have in place appropriate-level Change Advisory Boards (federated and centralized) with an exception process built in. ■ Some key processes are documented or “ingrained” in the way people work. Standard Operating Procedures are in place for Infrastructure Services. ■ DRM process is well defined and documented. and tools are provided to application owners to help build and manage the appropriate DR plans. ■ Have Remedy installed for primary Incident management functions. Remedy currently does not have any additional ITSM modules.	■ There is a general lack of formalized integration for foundational processes (change, incident, configuration, asset and problem). Little enterprisewide integration across process flows for all domains. – While process integration may be occurring individually (manually), there was no evidence of formal workflow to integrate foundational process with each other. ■ Process documentation exists for some processes, but the majority of the work is done through “tribal knowledge.” ■ There is a lack of a single ITSM framework tool. ■ Remedy is constrained to only incident management, with no integration to change and configuration management tools/activities. ■ Problem management is being done, but appears ad hoc and reactive, with little linkage to incident management, change/configuration management, and no event co-relation tools, no known error log management, no knowledge management process. ■ Configuration/asset management is managed by separate teams, separate tools and under separate owners: – Servers/Storage/Facilities – Network – Desktops/Laptops.

Infrastructure and Operations

Current State Process Assessment Rationale (continued)

Strengths (continued)	Weaknesses (continued)
■ Custom-developed tools for change, configuration and asset management activities. ■ CMDB tool is utilized as the basis of chargebacks.	■ Infrastructure Services-wide capacity management function is not in place. Infrastructure capacity management is done at the element level and is not proactive across the Infrastructure Services domain. ■ Change and configuration are the most evolved at DTMB, but still relatively siloed in nature. – Configuration and Change processes are more mature and repeatable in DC Ops, but do not extend to other parts of Infrastructure Services or Agency Services to the same degree. ■ Progress to process maturity and adoption is not clear. – General lack of top-down vision for process adoption and deployment across IT infrastructure. – A road map/strategic direction for IT service management adoption and maturity across DTMB is not evident. ■ DTMB is using point solutions for IT Service Management (ITSM) with no comprehensive ITSM capability in place. Most large organizations use an enterprise-scale ITSM tool that provides integrated features for foundational ITSM processes. – Incident management is based on a Remedy product that is heavily customized and behind in version level. Remedy is not fully integrated to other process areas.

Infrastructure and Operations

Current State Process Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	– Change and Configuration management utilize homegrown tools to manage all aspects of process management activities in DC Ops. Network and Desktop teams manage their own tools and processes. ■ Apart from initial risk analysis, DRM process is not integrated with risk management. – Although Risk management results in identification of DR requirements, the application owners have to implement the actual DR plans. Current DR adoption is slow (much is in progress), with little-to-no DR testing and compliance. – No single owner of the IT risk management process from end to end. ■ There is a lack of formal and consistent monitoring and reporting of IT infrastructure health and performance (i.e., monitoring of system availability, system performance, trending, uptime, etc.) across all elements. ■ Process metrics such as cycle time, resolution rates, improvement goals, etc., are not captured in a performance dashboard.

Infrastructure and Operations

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined I&O strategic plan. Common attributes include: ■ No defined strategy for business continuity; ■ Infrastructure investment decision are not based on business needs; ■ No clearly defined service catalog.	**High-level I&O strategy is defined but does not have measurable objectives. Common attributes include:** ■ Informal strategy for business continuity; ■ A few Infrastructure investment decisions are based on business needs; ■ Informally defined service catalog or service catalogs that are not integrated.	**I&O strategy is defined and communicated; however, it is not effectively translated into consistent action. Common attributes include:** ■ Formal I&O strategic plan that is inconsistently applied across the enterprise; ■ Formal strategy for business continuity; ■ Majority of infrastructure investment decisions are based on business needs; ■ Formally defined service catalog that is marketed to all agencies.	**I&O strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ Formal strategy for business continuity; ■ All infrastructure investment decisions are based on business needs; ■ Formally defined service catalog that is marketed to all agencies and local/federal governments.	**I&O strategy spans the business and is integrated into enterprise strategic planning, is continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ Formal I&O strategic plan that is consistently applied across the enterprise; ■ Defined process for evaluating and updating strategic plan; ■ Formal strategy for business continuity; ■ All infrastructure investment decisions are based on business needs; ■ DTMB evaluates and exploits emerging technologies for business innovation; ■ Formally defined service catalog that is marketed to all agencies, local/federal governments and private companies.

Infrastructure and Operations

Current State Strategy Assessment Rationale

Strengths

- Due to long-term consolidation, Infrastructure Services has adopted a shared services approach backed up by a chargeback mechanism.
- Service catalogs are in place for different areas.
- An Overall IT strategy exists with a section for IO strategy.
- IS has domain-level governance boards to manage/coordinate infrastructure activities.
- Overall, IS governance is provided by the CIO Leadership team and the IT Operations Committee (which includes Client Service Directors).
- IS has received recognition at NASCIO for operational readiness metrics and business availability, and for standing up the MiCloud cloud computing service.

Weaknesses

- No customer satisfaction or customer feedback process is in place.
  - Not clear if help desk surveys are being used for any prioritization or improvement.
- Lack of customer interaction between service providers/service managers and customer base.
  - "We are back-end services and do not interact with customers directly."
  - The limited interaction between Infrastructure Services and Agency customers makes it difficult to align the Infrastructure Services strategy with the agencies' strategies — "Infrastructure Services does not understand our business, our issues, and does things based on their schedule with no visibility that impacts our operations."
- Financial management is an area of concern
  - Financial management of I&O is essentially done at a budget level and cost allocation for services. "Showbacks" for providing basis of cost allocations is not in place.
  - Invoicing is challenged and presents clarity issues (customer feedback).
  - Limited capability to show true run rate of I&O from year to year apart from budgetary data (what is the cost and is it optimized for the service levels that are delivered?)
  - Currently, no benchmarking for I&O and services is conducted on a regular basis.

Infrastructure and Operations

Current State Strategy Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Cloud computing services is a step in the right direction, but: – Very early and essentially a proof of concept – Service positioning outside of traditional hosting/server teams is a constraint – Unclear who manages this service from the end-user standpoint – Unclear if service level for service aligns with end-user needs. ■ DR strategy that includes risk management, DR plan activation, DR testing, DR provisioning and management is constrained by: – DR site is nearing capacity, long-term solution is needed – Enforcement of DR policy and DR requirements is left to application group. Current status indicates majority of applications do not have a working DR plan in place (majority of applications have a BIA nearing completion).

Infrastructure and Operations

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
I&O service levels not clearly defined or negotiated with the customer. Common attributes include: ■ Infrastructure and data center metrics are not defined; ■ Project metrics are not defined at the beginning of the project; ■ Metrics to measure I&O service are not captured or available; ■ Disaster recovery objectives [Mean Time To Recovery (MTTR), Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs)] are not defined for critical business systems.	**Basic I&O service levels exist, but performance is not effectively measured. Common attributes include:** ■ Infrastructure and data center metrics are generally known but informally defined; ■ Project metrics are informally defined at the beginning of the project; ■ Metrics to measure I&O service are available but not meaningful for day-to-day operational management and for service management as per service catalog; ■ Disaster recovery objectives [Mean Time To Recovery (MTTR), Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs)] are informally defined.	**I&O service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Infrastructure and data center metrics are formally defined but inconsistently tracked; ■ Project metrics are formally defined at the beginning of the project but inconsistently tracked; ■ Metrics to measure I&O service are published, and are being used to manage operations and service catalog; ■ Disaster recovery objectives [Mean Time To Recovery (MTTR), Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs)] are formally defined for critical business systems.	**I&O service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Infrastructure and data center metrics are formally defined and consistently tracked; ■ Project metrics are formally defined at the beginning of the project and consistently tracked; ■ Metrics to measure I&O service are published, utilzed for operational management, service delivery and being used to improve services; ■ Disaster recovery objectives [Mean Time To Recovery (MTTR), Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs)] are formally defined.	**I&O service-level agreements and metrics are collaboratively and regularly agreed to with customers, and the organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Infrastructure and data center metrics are formally defined and consistently tracked; ■ Project metrics are formally defined at the beginning of the project and consistently tracked; ■ Metrics to measure I&O service are published, utilzed for operational management, service delivery and being used to improve services; ■ Disaster recovery objectives [Mean Time To Recovery (MTTR), Recovery Time Objectives (RTOs) and Recovery Point Objectives (RPOs)] are formally defined.

Infrastructure and Operations

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ Formal performance standards with agencies do exist. ■ DTMB has tools in place to capture detail data that can be utilized for metrics. ■ Internal metrics for operational measurement at a high level are in place. ■ Road map to manage the DRM expansion status exists and is being managed. ■ Cross-infrastructure metrics for end-to-end service are partially in place for application availability. Operational metrics for application availability are tracked and reported to the customer base. The application availability metrics are a combination of all the application layer components.	■ With regard to customer service: – Agencies have commonly complained about incidents being closed before remedied, insufficiently trained field agents, a lack of comprehensive metrics, and responsibility handoffs. ■ Several service catalogs exists (e.g., one for Network, one for Desktops, one for DC Ops, one for Cloud). The lack of coordinated service catalogs limits DTMB's ability to present a single view of IT performance to customers: – No single service owner – Service catalog pricing and service guarantees – Service improvement – Service design, service operations and service measurement are all done by the same teams. ■ Not measuring cycle time or improvement to customer-meaningful metrics. ■ Performance management dashboards are not in place. ■ Performance metrics (end-user view) for system/application performance for critical applications is not in place. ■ Cross-infrastructure metrics for end service are partially in place (application availability) — partly due to different service catalogs that are not integrated. ■ Essentially, the number of FTEs devoted to particular functions (technology towers) is known.

Infrastructure and Operations

Current State Service Level Assessment Rationale (continued)

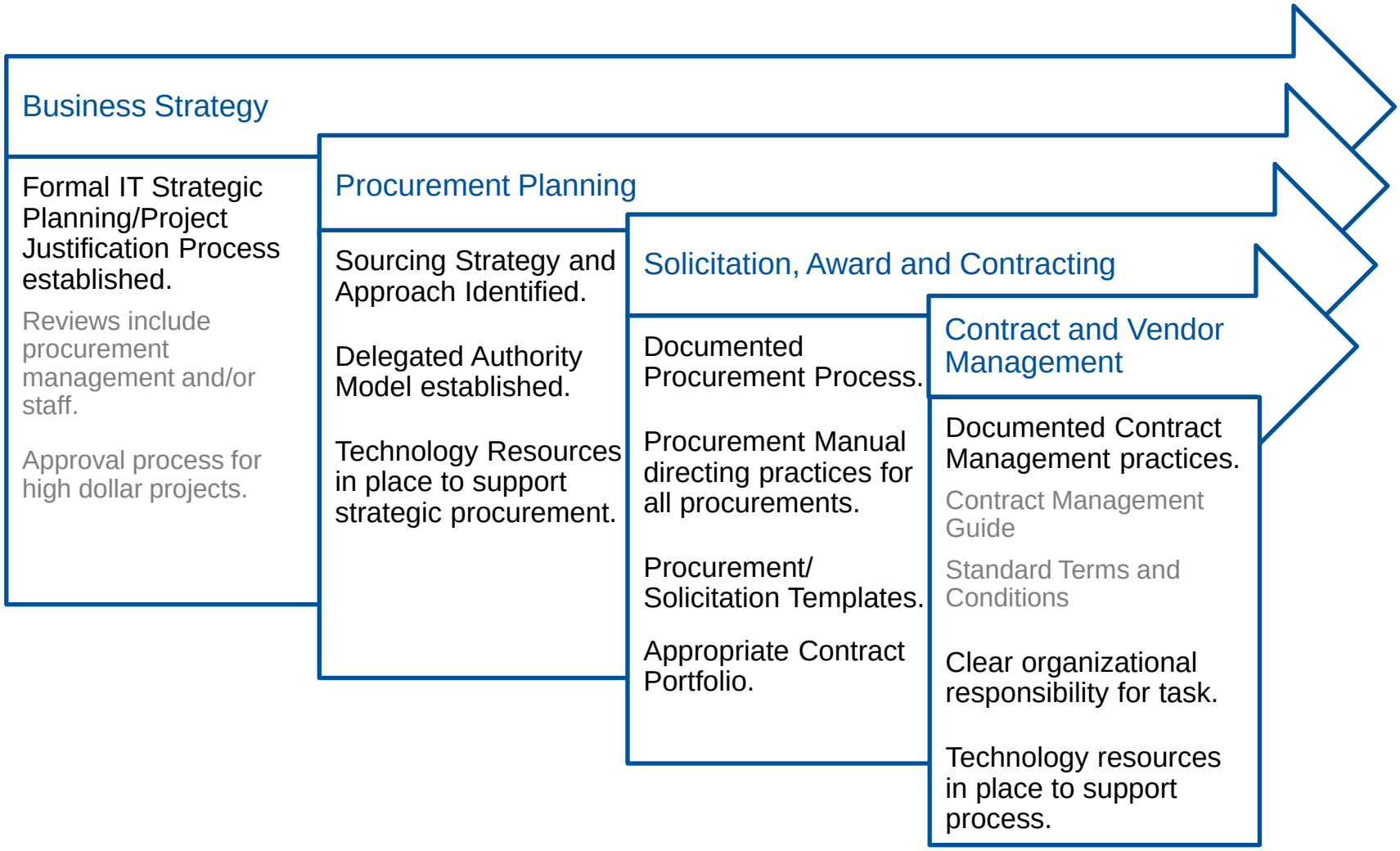
Strengths	Weaknesses (continued)
	■ Staff productivity and trending with improvement targets are not in place. ■ Resource utilization metrics are not comprehensively tracked. – Metrics that measure the progress, productivity and load on the FTEs. ■ Metrics for performance management measures and performance improvement measures with trending and correlation were not identified. – Lack of internal management metrics and lack of improvement targets for services makes it difficult to measure true status of IT operations, and limits ability to provide customers with true (not perceived) IT operations performance.

Current State Assessment and Maturity Analysis

IT Sourcing and Vendor Management

IT Sourcing and Vendor Management

Role Definition



IT Sourcing and Vendor Management

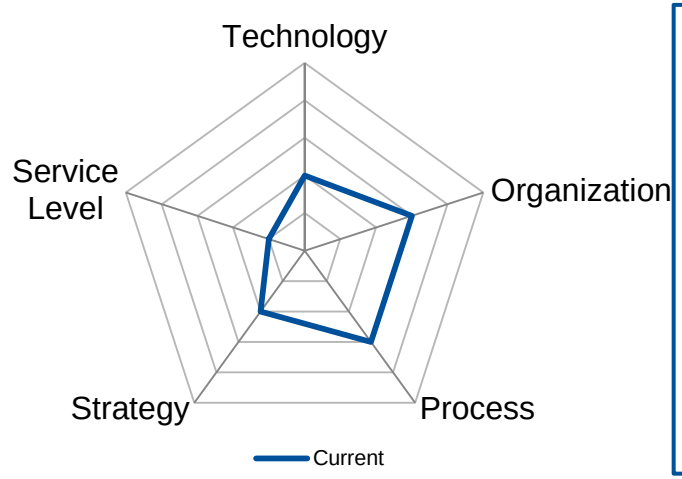
Current State Overview

- The procurement functions have limited staff with limited experience and training.
- The individuals within the sourcing function are generally well regarded by peers, while the sourcing function itself is not.
- The State segments purchasing and sourcing functions under separate management, and describes functions in a way that is inconsistent and in conflict with best practices.
- The State lacks organizational functions related to contract administration, vendor management, strategic sourcing and bid best-practice development found in peer states.
- The sourcing function lacks meaningful integration in the strategic/project planning process and preparation for agency-specific sourcing efforts.
- There is a lack of clear sourcing strategy and guidelines for delegated authority.
- Under current responsibilities and structure, the State is highly reliant on a single-sourced commodity contract vehicle.
- The procurement process requires repeat entry in up to four separate systems prior to fulfillment.
- The workflow within systems, and the manual processes that connect them, lead to delays that are perceived to be related to the procurement process as opposed to other DTMB review processes.
- The State lacks contract management tools that allow for tracking of key contract terms, performance measures, key deliverable and renewal dates, etc.
- The State lacks meaningful capacity to generate spend analysis of its volume, and is highly dependent on vendors to provide this information.

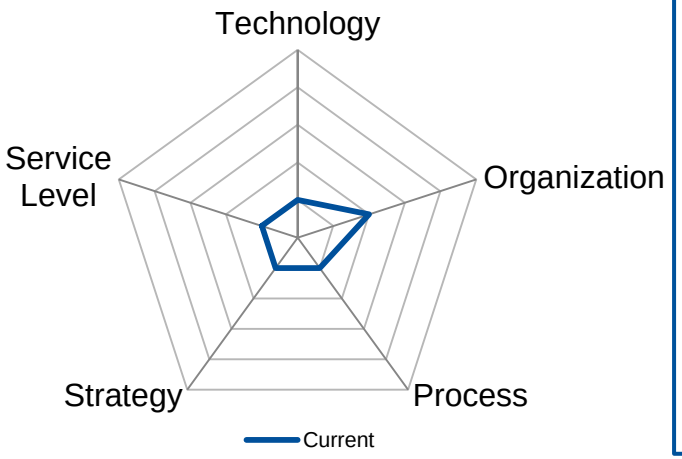
IT Sourcing and Vendor Management

Major Findings

- **Many baseline organizational functions found in peers are missing; procurement organizational structure seems unique to Michigan.**
  - Bottom Line: The dispersion of procurement functions across organizational components adds complexity, which results in bottlenecks that lengthen the procurement process.
- **The sourcing strategy is not integrated with the strategic technology planning, which results in delays and divergent priorities on what to bid and when.**
  - Bottom Line: Lack of integration with strategic planning results in procurement being viewed as an inhibitor, and diminishes the DTMB's ability to enable strategic sourcing.
- **The existing technology structure requires multiple entry.**
  - Bottom Line: Lack of automation causes user frustration and does not provide baseline spend analysis capacity considered to be the core strategic decision-making tool in peer states.
- **Current staffing levels cannot provide adequate procurement support to customer agencies.**
  - Bottom Line: The State needs to increase delegated authority, or increase staff, or both, for procurement to meet performance expectations.



Sourcing

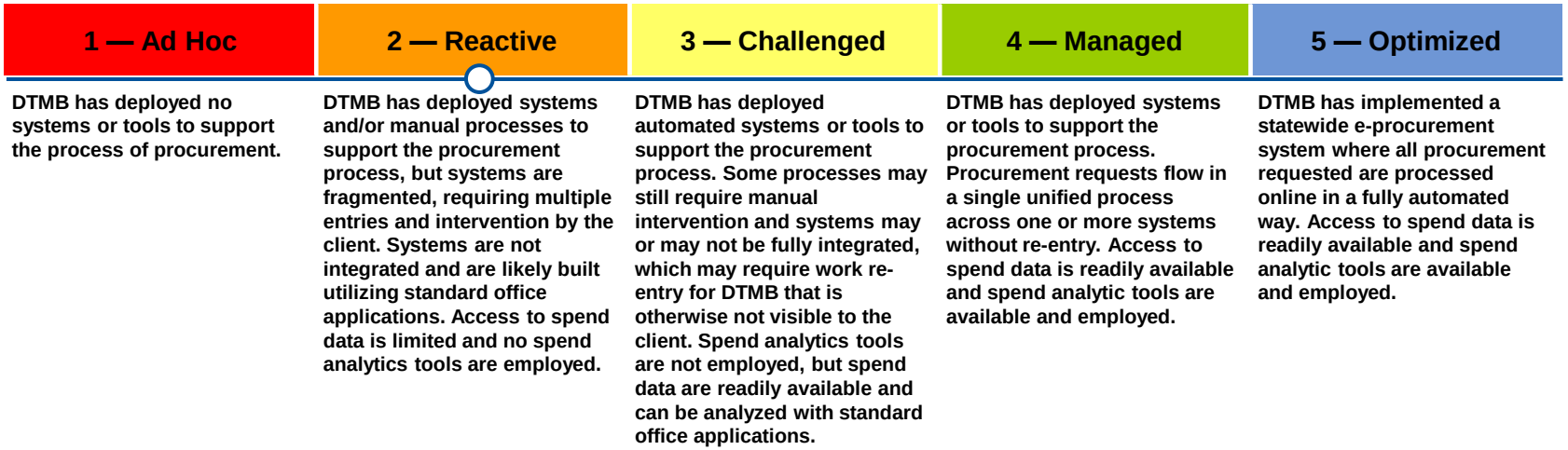


Vendor Management

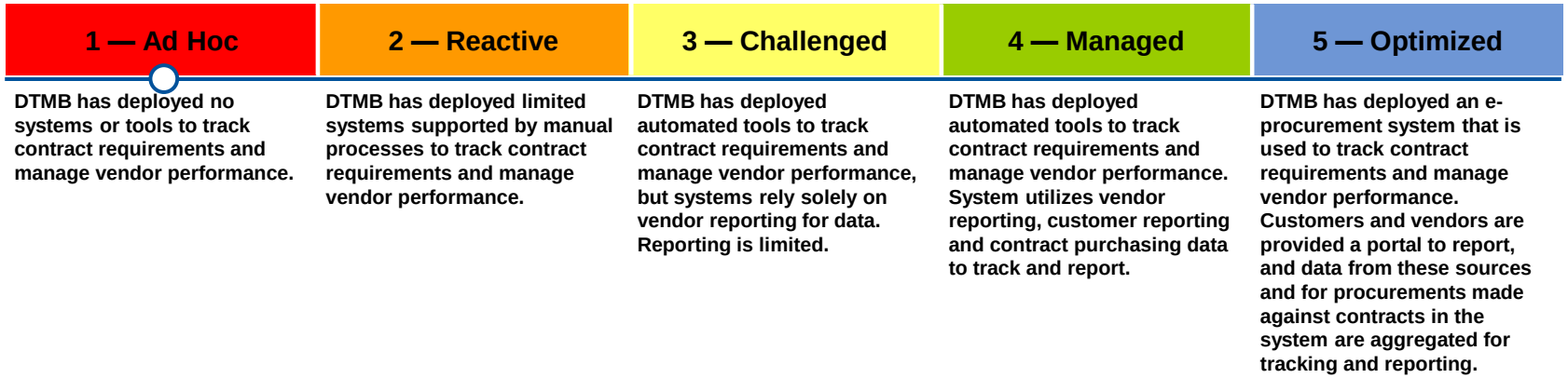
IT Sourcing and Vendor Management

Current State Technology Assessment

Sourcing



Vendor Management



IT Sourcing and Vendor Management

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ DTMB has deployed systems to support and manage procurement processes. ■ DTMB has deployed the Bid4Michigan system, establishing a foundation for an e-procurement platform. ■ Online system is provided to purchasers for major IT commodity contract.	■ Maintain four (4) independent systems utilized in the procurement process that have little to no integration. – Lack of integration points between procurement systems requires multiple, redundant, manual entries to complete procurement process redundant work by staff. ■ Manual review and approval processes are often required to complete the procurement process. – Limited ability to manage and track procurements from project identification to contract. ■ Contract management tools that allow for tracking of key contract terms, performance measures, key deliverable and renewal dates are non-existent. ■ Systems do not provide ready access to detailed purchasing data. – No system access to purchase detail data and limited access to procurement-related spend data (which data exist is provided by vendors where contracts require it).

IT Sourcing and Vendor Management

Current State Organization Assessment

Sourcing

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB has undefined roles and responsibilities. Staff lacks adequate training to support the understanding of process of contracting for goods and services. Staffing levels are insufficient to provide service to customers at an acceptable level.	DTMB has unclear or overlapping roles and responsibilities. Staff has basic on-the-job training in procurement processes, but has limited ability to establish and fulfill complex or proactive sourcing initiatives. Staffing levels are insufficient to provide service to customers at an acceptable level.	DTMB has defined but potentially overlapping roles and responsibilities. Staff is provided basic training necessary to support complex or proactive sourcing initiatives. Staffing levels are insufficient to provide service to customers at an acceptable level.	DTMB has clearly defined roles and responsibilities. Staff has a clear career path and is adequately trained/certified to support complex and proactive sourcing initiatives and to perform the necessary account planning with the customer agencies. Staffing levels are adequate to provide service to customers at an acceptable level.	DTMB has clearly defined roles and responsibilities. Staff has a clear career path and is sufficient in number and adequately trained/certified resources to support complex and proactive sourcing initiatives that have the needed visibility into future customers' business and technical needs and are proficient at acting as business partners for the customer agencies.

Vendor Management

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB has no identified organizational unit tasked with contract and vendor management.	DTMB has no identified organizational unit tasked with contract and vendor management. Staff in various areas may perform some of the functions related to contract and vendor management, but there is no formal training or unified process or approach.	DTMB has clearly identified roles and responsibilities for vendor and contract management functions. Performance of the function is still fragmented or is performed as an additional duty by procurement staff. There is limited training for Staff.	DTMB has clearly identified roles and responsibilities and a defined organizational unit responsible for vendor and contract management functions. Staff performing the function is separate from procurement staff and is adequately trained to perform their duties.	DTMB has clearly identified roles and responsibilities and a defined organizational unit responsible for vendor and contract management functions. Staff performing the function is separate from procurement staff and is adequately trained and/or certified to perform their duties.

IT Sourcing and Vendor Management

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ DTMB separates daily purchasing functions from more-complex procurement functions. ■ IT Procurement staff are organized to develop specialization by product category. ■ Individual contributors to the process are well regarded.	■ Staff performing procurement functions report to different management divisions. ■ Staff have minimal time on job and lack adequate training to perform complex sourcing activities. ■ Staffing levels are lacking to provide adequate procurement support to customer agencies. – Limited IT procurement resources often create bottlenecks in process. – Resource constraints limit ability to execute on many opportunities. ■ There is no organizational unit tasked with strategic sourcing, contract or vendor management.

IT Sourcing and Vendor Management

Current State Process Assessment

Sourcing

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB does not have clear statute and/or documented processes directing the process of acquisition and sourcing.	DTMB has undocumented ad hoc processes, or limited documented processes directing the process of acquisition and sourcing.	DTMB has standard, documented processes directing the process of acquisition and sourcing, but processes to align procurement efforts with IT standards and shared service review processes are limited to non-existent.	DTMB has a standard, documented process directing the process of acquisition and sourcing, and that evaluates the alignment of business needs to IT initiatives for each customer agency. DTMB's tools and organization are appropriately aligned to efficiently track the needs of the business during the defined processes.	DTMB has a standard, documented process to evaluate the alignment of business needs to IT initiatives for each customer agency; DTMB's tools and organization are appropriately aligned to efficiently track the needs of the business during the defined processes.; DTMB has defined service level objectives for interactions with each customer agency.

Vendor Management

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB does not have documented processes for contract and vendor management.	DTMB has undocumented ad hoc processes, or limited documented processes directing the process of contract and vendor management. Contract and Vendor management consists of addressing concerns or issues brought by customers as they arise.	DTMB has a standard, documented process to direct contract and vendor management, but management is often reactive to vendor and/or customer reporting.	DTMB has a standard, documented process to direct contract and vendor management. Staff proactively review vendor and/or customer reporting to seek and address issues before they arise, when possible.	DTMB has a standard, documented process to direct contract and vendor management. Staff develop tools for use by customers to improve the process for future contracts.

IT Sourcing and Vendor Management

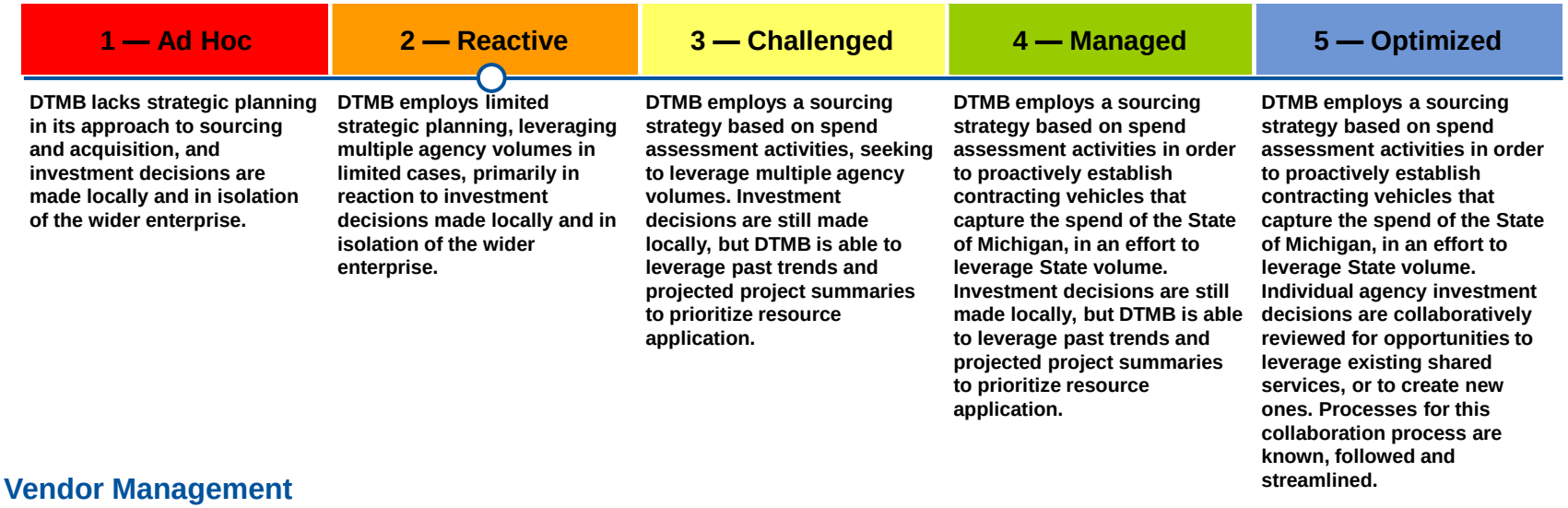
Current State Process Assessment Rationale

Strengths	Weaknesses
■ Processes for basic purchasing functions and purchase categories are documented. ■ Toolkit being developed to perform annual assessments of contracts and vendors. ■ Each contract has an identified Contract Compliance Officer responsible for managing the contract, but only as an added duty.	■ Processes for complex procurements are not documented or repeatable. ■ Procurement is not actively involved in the current process for agencies to communicate future procurement needs. – Agencies often view procurement as a step in the process, rather than a “go-to” group that can help to facilitate a solution to a complex problem. ■ Procurements require interaction from multiple divisions at DTMB. ■ There is minimal delegation authority for procurement activities. ■ Vendor management is primarily a response to complaints or concerns.

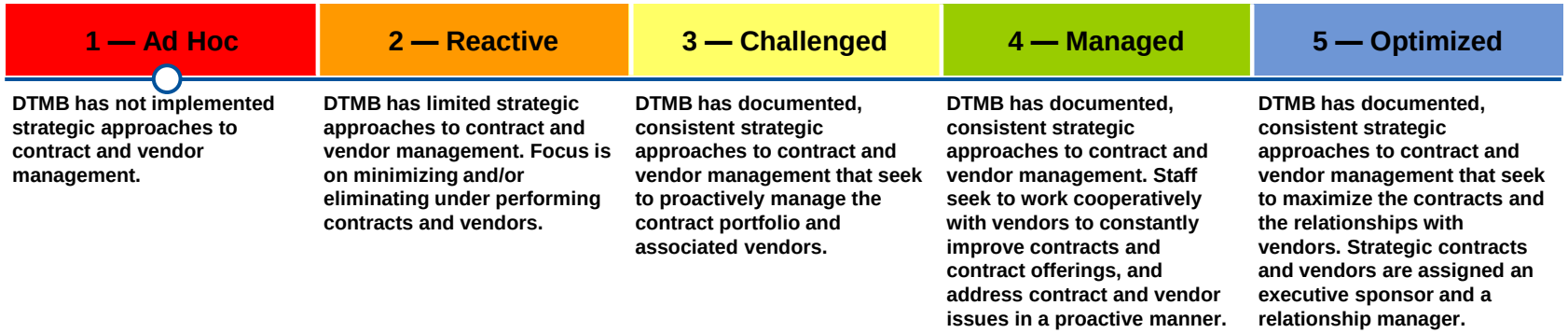
IT Sourcing and Vendor Management

Current State Strategy Assessment

Sourcing



Vendor Management



IT Sourcing and Vendor Management

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ Several statewide strategic commodity and shared services contracts have been established for agency use. ■ MiDeal program is actively fostering use of State contracts by local government. ■ Call for Projects process provides a foundation for the opportunity to drive strategic sourcing and shared services.	■ Lack organization, governance and staffing to enable strategic sourcing and category management activities. – Focus is on handling daily flow of work and not on identifying strategic opportunities. ■ Shared services are often seen as new budget costs and are rebuffed by agency. – Staff often do not culturally associate with DTMB as a shared-services organization.

IT Sourcing and Vendor Management

Current State Service Level Assessment

Sourcing

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB has not established any service level objectives for sourcing and acquisition that are tied to the statewide objectives/needs of the customer agencies.	DTMB has informal service level objectives for sourcing and acquisition that are tied to objectives/needs of the customer agencies; No objectives or metrics are defined across the enterprise.	DTMB has defined and documented service level objectives for sourcing and acquisition that are tied to objectives/needs of the customer agencies, but performance is not measured; No objectives or metrics are defined across the enterprise.	DTMB has clearly defined and documented service level objectives for sourcing and acquisition that are tied to objectives/needs of the customer agencies; DTMB has formal processes in place for measuring DTMB's performance against the objectives; DTMB is managing to agreed-upon service levels.	Integrated reporting of performance and ongoing improvement within each customer-agency and enterprisewide.

Vendor Management

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
DTMB has not established any service level objectives for contract and vendor management that are tied to the objectives/needs of the customer agencies.	DTMB has informal service level objectives for contract and vendor management that are tied to objectives/needs of the customer agencies; No objectives or metrics are defined across the enterprise.	DTMB has defined and documented service level objectives for contract and vendor management that are tied to objectives/needs of the customer agencies, but performance is not measured; No objectives or metrics are defined across the enterprise.	DTMB has clearly defined and documented service level objectives for contract and vendor management that are tied to objectives/needs of the customer agencies; DTMB has formal processes in place for measuring DTMB's performance against the objectives; DTMB is managing to agreed-upon service levels.	Integrated reporting of performance and ongoing improvement within each customer-agency and enterprisewide.

IT Sourcing and Vendor Management

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ Management has noted the intent to implement a program for performance measurement and continuous improvement.	■ Metrics to measure performance of procurement divisions have not been established and, as a result, procurement divisions lack the ability to track performance and implement continuous improvement efforts. ■ Regular requests for feedback on services provided by procurement divisions are not performed.

Current State Assessment and Maturity Analysis

Security and Risk Management

Security and Risk Management

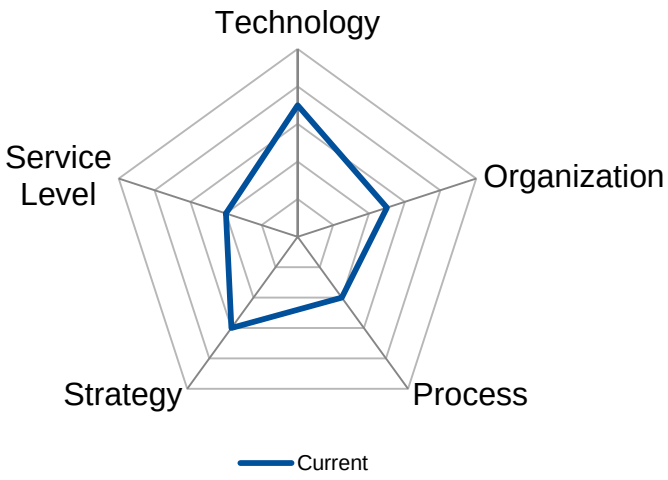
Current State Overview

- Michigan recently reorganized to create a Cyber-Security and Infrastructure Protection Organization (CIP) that is tasked with managing all aspects of security for Michigan.
- The CIP is headed by the Cyber-Security Officer (CSO) who manages all aspects of cyber-security and infrastructure protection, including:
  - Physical security of DTMB assets and property
  - Information security and protection of DTMB assets and data
  - External community outreach programs to ensure Michigan's desire to be a leader in cyber-awareness, training and citizen safety.
- The CSO works with federal and State agencies on piloting cutting-edge technologies (DHS Einstein and Albert technologies).
- 2011 Cyber-Summit for National Cyber-Awareness month with DHS and NCSA.
- DTMB has a very comprehensive website for cyber-security that provides an overview of the outreach activities as well as end-user awareness training activities.
- DTMB currently has all the right tools and technology supporting a mature architecture.
- DTMB has a good-sized, dedicated staff (32 personnel), but struggles, like most organizations, with finding and retaining top cyber-security staff. Staff is more operationally focused, less risk-focused.
- DTMB currently performs processes that are typical security process, policy, awareness, vulnerability, threat, incident management.
- DTMB does not have a strong focus on privacy management.

Security and Risk Management

Major Findings

- **DTMB is using the right tools, supports a mature architecture, and is involved in all the traditional security processes.**
  - Bottom Line: This is a good foundation to improve security management processes.
- **DTMB is not leveraging all capabilities of tools, nor protecting the entire infrastructure consistently.**
  - Bottom Line: Advanced threats through desktop applications can cause security breaches.
- **Good collaboration with commercial industry and federal/State agencies.**
  - Bottom Line: External outreach policy and strategy make it possible for DTMB to leverage these relationships for tools, training and to be a leader in cyber-security.
- **DTMB struggles with finding and retaining top cyber-security staff.**
  - Bottom Line: Security operations can be severely impacted by personnel attrition.
- **DTMB lacks a strong focus on privacy management and data security management.**
  - Bottom Line: Privacy management is an increasingly important area in the industry. Lack of privacy management increases overall risk to the State.



Security and Risk Management

Current State Technology Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No or limited IT systems or tools in place to support security, including tools such as: ■ Endpoint Security and Mobility Tools ■ Network and Data Center Security Tools ■ Application and Software Security ■ Data Security Tools ■ Identity and Access Management Tools ■ Cloud Security Tools ■ Monitoring Tools ■ Vulnerability Management Tools	**IT systems and tools are presently in place to support security, including tools such as those listed below. However, no or limited coordination or standardization across the enterprise.** ■ Endpoint Security and Mobility Tools ■ Network and Data Center Security Tools ■ Application and Software Security ■ Data Security Tools ■ Identity and Access Management Tools ■ Cloud Security Tools ■ Monitoring Tools ■ Vulnerability Management Tools	**IT systems and tools are in place to support security, including tools such as those listed below. Inconsistent usage of tools (e.g., planning only, large projects, etc.).** ■ Endpoint Security and Mobility Tools ■ Network and Data Center Security Tools ■ Application and Software Security ■ Data Security Tools ■ Identity and Access Management Tools ■ Cloud Security Tools ■ Monitoring Tools ■ Vulnerability Management Tools	**IT tools and systems are in place to support security across the enterprise and are consistently used, including tools such as those listed below.** ■ Endpoint Security and Mobility Tools ■ Network and Data Center Security Tools ■ Application and Software Security ■ Data Security Tools ■ Identity and Access Management Tools ■ Cloud Security Tools ■ Monitoring Tools ■ Vulnerability Management Tools	**IT systems and tools are in place to proactively integrate security and support the enterprise's ability to improve and optimize operational performance using tools such as:** ■ Endpoint Security and Mobility Tools ■ Network and Data Center Security Tools ■ Application and Software Security ■ Data Security Tools ■ Identity and Access Management Tools ■ Cloud Security Tools ■ Monitoring Tools ■ Vulnerability Management Tools

Security and Risk Management

Current State Technology Assessment Rationale

Strengths	Weaknesses
■ Have good technology: Symantec suite and SIEM, Netwitness, Albert from DHS. Two-factor authentication for remote access using RSA, Tivoli SSO, Websense filters, Qualys scanners. All these tools are mainstream tools in the market. ■ The strong tools are backed up by a strong security architecture with protection zones, as per industry norm.	■ Not utilizing all the tools to their capability. Mostly reviewing logs and not leveraging comprehensive alerting for real-time notifications. ■ Too much reliance on tool output to initiate response process; active monitoring is not ongoing, especially after-hours. ■ Vulnerability coverage focused mostly on PCI and compliance systems at the server layer. Desktops and network devices are not being secured or monitored, as well as servers. – Potentially missing many intrusions coming from compromised desktops. – Data may be protected at rest, on servers, but not in transit or on workstations.

Security and Risk Management

Current State Organization Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
No clear organizational structure or overall ownership of security responsibilities for enterprise. Common attributes include: ■ Very few dedicated resources for security as their primary responsibility; ■ Low security accountability at both the project and ongoing operations levels; ■ No or extremely limited security training or certifications present; ■ Low skill sets; ■ Undefined roles and responsibilities.	**Ownership of security responsibilities within the enterprise exists, but the organization is immature and some of the appropriate skill sets are not present. Common attributes include:** ■ Organizational structure is defined but it is not aligned for effective service delivery; ■ Technology-centric organization with tiered support; ■ Missing key organization functions/roles; ■ Inconsistently defined roles and responsibilities; ■ Nascent process-based roles; ■ Limited staff development and training budgets; ■ Staff utilization metrics; ■ Formal performance reviews; ■ Duplicative roles; ■ No succession planning with key single points of failure; ■ Ad hoc governance; ■ Non-optimized staffing levels; ■ Weak budget level IT finance.	**Security organizational structure defined and fairly mature, and exhibits some best practices. Skill sets largely align with security needs and training, and certifications are present. Common attributes include:** ■ Defined, empowered role for a CISO or similar position; ■ Organizational structure is defined and aligned for effective service delivery; ■ Process-driven organization; ■ Consolidated organization with matrix management; ■ Alignment of resources by roles and skills; ■ Appropriate staffing or skills not in place for some elements; ■ Optimized or near-optimized staffing levels; ■ Working to adopt best practices; ■ Some competency centers; ■ Defined senior-level governance structure and charters; ■ Effective succession planning with no single points of failure; ■ Comprehensive staff development programs.	**Security organizational structure defined and aligned for effective service delivery and enforcement with appropriately resourced and skilled staff. Common attributes include:** ■ Organizational structure is defined and aligned for effective service delivery, with appropriately resourced and skilled staff; ■ Established program for ongoing training; ■ Service-centric organization; ■ Service-delivery-focused organization with strong relationship managers and service line financial management roles; ■ Trusted service provider to business; ■ Skills portfolio management; ■ Formal multi-tiered governance structure with charters; ■ Metrics-driven performance management; ■ Detailed role definition.	**Security organizational performance is evaluated, enhanced and rewarded based on defined objectives. Common attributes include:** ■ Security accountability integrated effectively into the business; ■ Customer- and business-focused organization; ■ Virtual teaming; ■ Business/IT Staff rotation; ■ Developing best practices; ■ Focused staff development and training competency centers; ■ Business-driven metrics and resourcing.

Security and Risk Management

Current State Organization Assessment Rationale

Strengths	Weaknesses
■ Cyber-security is managed under a separate statewide CSO who is a direct report of the CIO. ■ Dedicated staffing with a sufficient number of staff. ■ Have good feeder system across DTMB and from regional educational institutions to bring in junior staff. ■ Staffing function includes architecture, project management, compliance, risk management, training and policy management functions. ■ Performing both security management and IT risk management functions within the security organization. ■ Have a security operations committee in place to help govern the technical and business issues around security management. This committee is a sub-committee of the CSP governance process and is solely focused on cyber-security with representation from other technology domains, as well as Agency Services. ■ Have an executive-level Technical Review Board (ETRB) that manages overall IT direction, as well as provides approvals and management for specific exceptions, as needed, for the security process.	■ As is the norm in the industry, DTMB is challenged with hiring and retaining senior people. ■ Some key functions are one-deep, with limited succession planning in place. ■ Privacy management role and privacy officer function was not observed. ■ Staff do not appear to have comprehensive understanding of how to leverage full capability of tools. There is a need for specialized training on tools in the environment. – Staff is using tools in a more-general sense and is not able to customize to improve effectiveness and efficiency. The security staff does not have strong security analysts. As a result they do not possess the skill/training to leverage the full capabilities of the tools. ■ Some security duties are managed by other organizations, e.g., Office Automation manages the mail filter; this would be better run by Security operations. ■ Roles and responsibilities between the various IS technical domains and the recently created CIP are not clearly defined. ■ Overall, IT risk management is not comprehensive. Some functions related to initial IT application risk is done; however, evaluation, enforcement and operationalizing risk management activities (DR plans) are not a focus. A separate State risk officer function was not observed.

Security and Risk Management

Current State Organization Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ Staff reactive rather than proactive, and missing intrusions or increased time before identification. ■ Not seeing all security events (i.e., from email filters) could miss intrusions originating from phishing emails, which is becoming a big threat factor in getting a foothold on the desktops, which are not well protected.

Security and Risk Management

Current State Process Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Processes to support security are non-existent, or ad hoc. Common attributes include: ■ Completely ad hoc processes that are not documented, standardized, measured or continuously improved; ■ "Reinvention of the wheel", duplicative efforts.	**Processes to support security are largely documented; formal processes are nascent and focused on policing and compliance. Common attributes include:** ■ Security processes have been partially integrated (at the user interface, data or activity levels) with other related processes, including relevant operations and service management processes; ■ Processes are neither well defined nor repeatable; ■ Some or most processes documented; ■ Processes are not standardized or measured, and there is no method for improvement.	**Processes to support security are standardized and are consistently applied to the organization. Common attributes include:** ■ Security processes have been largely integrated (at the user interface, data or activity levels) with other related processes, including relevant operations and service management processes; ■ Some processes and procedures may be manual or inefficient, and workarounds are present; ■ No measurement or means of improving those processes.	**Processes to support security are well defined and managed consistently across the enterprise. Common attributes include:** ■ Security processes have been formally and effectively integrated (at the user interface, data or activity levels) with other related processes, including relevant operations and service management processes; ■ Systems, methods and practices are followed with appropriate control and governance; ■ Mechanisms are in place across the enterprise to ensure compliance.	**Processes to support security are mature and efficient. Common attributes include:** ■ Best practices for security processes are present, and have been optimally integrated (at the user interface, data or activity levels) with other related processes, including relevant operations and service management processes; ■ Continuous measurement and improvement of security processes is a core competency; ■ Control/governance mechanisms are in place to feed a cycle of continual enhancement and evolution across the enterprise.

Security and Risk Management

Current State Process Assessment Rationale

Strengths	Weaknesses
■ Policy management is being done by the compliance team. Policy compliance is tied in with EA reviews, as well as the infrastructure service request process. ■ A good compliance process is in place, especially for PCI compliance. CIP works very closely with the Treasury Department to ensure all aspects of PCI compliance are proactively managed. SOM has been PCI certified four times. ■ Good collaboration sources with MS/ISAC and DHS. ■ Use COBIT and NIST 800-53 standards and guidelines. ■ Have inserted security into the SUITE process for compliance reporting and participate in the infrastructure provisioning process, especially for servers. ■ Utilizing configuration management processes and tools maintained by the DC operations team, the network team and the desktop team. ■ Are starting to look at user awareness training for security-related functions. ■ Vulnerability management including identification (EA compliance phase), remedial action (EA compliance and CMDB) and scanning is being done.	■ Awareness and education process is starting to develop initial user-awareness training. However, there appears to be a need for better user awareness on areas of increasing risk. – Specialized technical risk-awareness training and controls are also needed when dealing with a federated application development/Infrastructure Services environment with many different vendors and products. ■ IAM and data access management will need to be managed due to focus on Mobility, cross-agency integration, third-party integration, social networking, etc. This area appears to be reactive based on need, as opposed to being a focus for DTMB. ■ Need to be more proactive (detective in nature), as opposed to reacting to threats identified by tools. ■ Vulnerability management/threat management. – Tracking of critical data elements is not done formally (a great deal of privileged taxpayer info, criminal information, etc., is stored but not tracked formally). – A comprehensive enterprisewide risk assessment that identifies the top five to 10 risks for the State has not been done. The last agency-wide risk assessment was nine years ago and has not been updated.

Security and Risk Management

Current State Process Assessment Rationale (continued)

Strengths (continued)	Weaknesses (continued)
■ Security incident management involves detection through SIEM tools and management through a breach management process. ■ Business continuity risk management for IT systems is managed out of the CIP.	– IT risks assessments for IT systems are done on a system-by-system basis. – Process to update policies with latest threats or control technology is not comprehensive. ■ Out-of-date enterprisewide risk assessment indicates probably not prioritizing areas of protection that are not specifically under regulatory requirements. ■ Asset management not comprehensive; still in multiple systems with varying degrees of control. – Without complete asset management, one does not know what to protect, or where it is. ■ Desktop patching is limited to OS, not applications. – Unpatched applications are a large threat vector, not keeping applications (such as Adobe or browsers) patched could allow simple attacks to take over workstations. ■ Focus is on security processes; risk management and privacy management are not as mature or a source of focus. ■ A dedicated 24/7 SOC process that is in charge of security monitoring of all infrastructure assets is not in place. Although security monitoring is occurring during office hours and transferred to IT operations monitoring after-hours, this function is not dedicated in nature.

Security and Risk Management

Current State Strategy Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
There is no defined strategy for security. Common attributes include: ■ Security does not have its own goals and objectives, and simply reacts to most-vocal or influential customers (either internal or external); ■ Security has no means of understanding whether or not it is aligned with DTMB's overall strategy; ■ No process and/or governance in place to ensure ongoing alignment with DTMB's overall strategy.	**A security strategy exists, but it is not coordinated, not clearly defined, and does not have measurable objectives. Common attributes include:** ■ Security strategy does not fully integrate with the wider organization. nor is it communicated enterprisewide; ■ Security has its own goals and objectives, but there is no real consideration for aligning it with the overall DTMB strategy; ■ Some means of understanding whether or not it is optimizing to its own desired goals, but cannot determine if it is really working toward DTMB's overall strategy; ■ No or limited ability to ensure ongoing alignment with DTMB's overall strategy.	**The security strategy is defined and communicated; however, it is not consistently or effectively translated into action. Common attributes include:** ■ Security governance is inadequately established, allowing for the implementation of the strategy to become fragmented and confused across the enterprise; ■ Security has its own goals and objectives that partially align with DTMB's overall strategy; ■ Reactively determines how well they are aligned to DTMB's overall strategy; ■ Ineffective or nascent ability to ensure ongoing alignment with DTMB's overall strategy, or ability to take corrective action when it is getting out of alignment.	**The security strategy is clearly defined, communicated and socialized throughout the enterprise. Common attributes include:** ■ Security governance effectively used to articulate how architecture development decisions are made; ■ Security has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Adequate ability to ensure ongoing alignment with DTMB's overall strategy, or to take corrective action when it is getting out of alignment.	**Security is fully integrated with strategic planning, continually reviewed, and the strategy is updated to align with business objectives. Common attributes include:** ■ Security governance function is integrated with the organization's corporate and IT governance functions; ■ Security strategy is clearly defined and communicated throughout the enterprise; ■ Security has its own goals and objectives that fully align with DTMB's overall strategy; ■ Proactively determines how well they are aligned to DTMB's overall strategy; ■ Effective ability to ensure ongoing alignment with DTMB's overall strategy, and to take corrective action when it is getting out of alignment.

Security and Risk Management

Current State Strategy Assessment Rationale

Strengths	Weaknesses
■ Strong statewide outward-facing strategy for cyber-awareness and education, as is evidenced by the cyber-security website as well as strategy documents. ■ Strong peer networking approach with strong ties with federal/State security agencies that enables testing, funding and training of resources and new technologies. ■ Working with local, State, federal agencies and private companies to set up a cyber-command center.	■ A corresponding internal strategy that links outward focus to protection of State network was not identified. ■ Currently, more-tactical operations, no strategic long-term view of internal security priorities. – A public intrusion on internal network could affect the State's reputation for wanting to be leader. ■ With limited capital funding to upgrade existing toolsets and purchase new technologies, keeping abreast of cyber-security is an important area for SOM. ■ Risk management activities are limited to IT systems security and initial application risk management. Comprehensive risk management activities such as risk governance, risk mitigation planning, risk management program, risk register and repeatable risk management program is not in place. – The lack of risk management discipline increases overall risk to the State. ■ Environmental scanning that looks for events in the external market, as well as events/trends in the internal organization with a view to identify potential threats, is not in place at this time. – Without this, DTMB will not keep up with advanced threats. ■ Although IT security is a focus, information security is not a focus (includes lack of EA focus in information management).

Security and Risk Management

Current State Strategy Assessment Rationale (continued)

Strengths	Weaknesses (continued)
	■ User workstations can be compromised, and could impact productivity or privacy. ■ Privacy management is not an area of focus. – Privacy management is an increasingly important area in the industry. Lack of privacy management increases overall risk to the State.

Security and Risk Management

Current State Service Level Assessment

1 — Ad Hoc	2 — Reactive	3 — Challenged	4 — Managed	5 — Optimized
Security services are not clearly defined or negotiated with the customer. Common attributes include: ■ No service-level agreements or metrics for which they are accountable to either end customers or other groups within DTMB; ■ No means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Security services are provided, but performance is not effectively measured. Common attributes include:** ■ No or few objectives or metrics are defined for security services, or across the enterprise; ■ Have limited security service-level agreements and metrics for which they are accountable to either end customers or other groups within DTMB; ■ Ability to accurately calculate those metrics is limited; ■ Little means of working with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction.	**Security service-level agreements and metrics are established, and the organization is accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups partially believe to be accurate; ■ Security is partially able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ No means of continuously improving to achieve better levels of customer satisfaction; ■ Service levels to support chargeback and other financial allocation mechanisms exist but are not fully mature.	**Security service-level agreements and metrics are established, and the IT support organization is managing to agreed-upon service levels. Common attributes include:** ■ Security service-level agreements, and metrics for which they are accountable to end customers and other groups within DTMB, are benchmarked against peers; ■ Ability to accurately calculate metrics that end customers and other DTMB groups mostly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Ability to work toward improving actual delivery to current service-level agreements, but not toward increasing those service levels in the future; ■ Service levels to support chargeback and other financial allocation mechanisms exist.	**Security service-level agreements and metrics are collaboratively and regularly agreed to with customers, and organization is fully accountable to end customers and other groups within DTMB. Common attributes include:** ■ Ability to accurately calculate metrics that end customers and other DTMB groups truly believe to be accurate; ■ Fully able to work with customers on an ongoing basis to understand actual delivery against service-level agreements; ■ Means of continuously improving to achieve better levels of customer satisfaction and to increase those service levels in the future; ■ Best-practice chargeback and other financial allocation mechanisms are in place to deliver cost-effective and high-quality services.

Security and Risk Management

Current State Service Level Assessment Rationale

Strengths	Weaknesses
■ Tools that have been deployed automatically capture many operational metrics around security process. ■ DRM process has started collecting metrics around progress toward completing DR planning.	■ Management-level metrics that deal with security dashboards or metrics for providing to management to assess the overall threat status to DTMB were not identified.

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